UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

WASTE MANAGEMENT DIVISION
RCRA ENFORCEMENT OFFICE
RCRA COMPLIANCE EVALUATION INSPECTION REPORT

Purpose:	RCRA Compliance Evaluation Inspection
Facility:	Freeport-McMoRan Sierrita, Inc.
Location:	6200 West Duval Mine Road Green Valley, Arizona 85614
Mailing Address:	P. O. Box 527 Green Valley, Arizona 85622
EPA ID Number:	AZD982478216
Date of Inspection:	August 11 and 12, 2009
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Report Date:	June 29, 2010
Prepared by:	John Schofield and Van Housman

Introduction

On August 11 and 12, 2009 representatives of the U.S. Environmental Protection Agency (EPA), Arizona Department of Environmental Quality (ADEQ), and Pima County Department of Environmental Quality (PDEQ) conducted an unannounced concurrent compliance evaluation inspection (CEI) of the Freeport-McMoRan Sierrita, Inc. (FM-Sierrita, Sierrita, or facility) at Green Valley, Arizona. The purpose of the inspection was to determine FM-Sierrita's compliance with applicable federal environmental statutes and regulations, and in particular, the Resource Conservation and Recovery Act (RCRA), as amended, the regulations provided in the Code of Federal Regulations (CFR), Chapter 40, Parts 261-265, 268, 273, and 279, and the State of Arizona's authorized hazardous waste program in the Arizona Revised Statutes, Title 49 and the Arizona Administrative Code (AAC) Title 18, Chapter 8, Article 2.

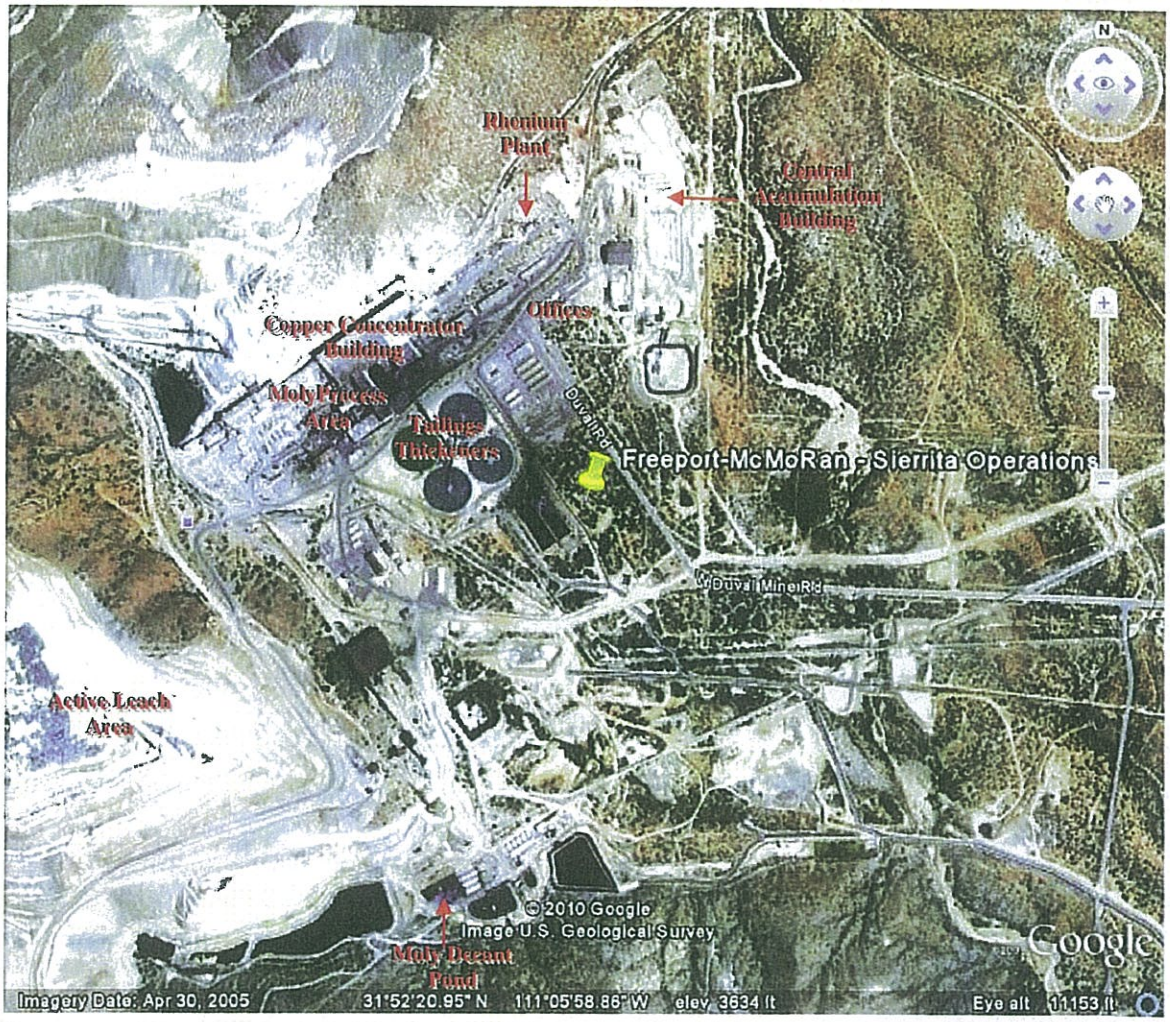
The inspectors conducted a physical inspection of the facility and reviewed records related to FM-Sierrita's hazardous waste management practices. This inspection report summarizes the events that transpired during the inspection and observations made by the inspectors.

Facility Background

Facility Name	Freeport-McMoRan Sierrita, Inc., a wholly-owned subsidiary of Freeport-McMoRan Copper & Gold, Inc.
Company Web-Site	http://www.fcx.com/operations/USA_Arizona_Sierrita.htm
Site History	Open pit mining at the Sierrita Mine began operations in 1957. Phelps Dodge Corporation (Phelps Dodge) acquired the mine in 1999. Freeport-McMoRan Copper & Gold, Inc. completed its acquisition of Phelps Dodge, including the Sierrita operations, in 2007.
Number of Employees	Approximately 1,000 employees
Hours of Operation	24 hour, 7 days per week, 365 days per year. First shift starts at 6:00 a.m.
Filed Notification of Hazardous Waste Activity	July 12, 1999
Facility Processes	FM-Sierrita operates an open pit copper mine, and copper, molybdenum, and rhenium processing facilities. A more detailed description of the facility processes are discussed below.
Wastes Streams	Used oil, spent solvents (e.g., acetone, paint thinners, methyl ethyl ketone), paint wastes, aerosol cans, maintenance related wastes (e.g., adhesives, cleaners), spent filters, and universal wastes (e.g., batteries, mercury lamps, and fluorescent lamps).
Generator Status	Large Quantity Generator (LQG)
Compliance History	Two prior CEI's of the facility have been performed. On October 15, 1998, a CEI was performed by the PDEQ. Four unspecified violations were identified. On March 19, 2007, PDEQ performed a CEI. No violations were observed by the agency representative.

Site Description and Process Information

FM-Sierrita consists of three open pits, a concentrator, two molybdenum roasting plants, a ferromolybdenum chemical plant, a rhenium chemical plant, an oxide and low grade sulfide dump leaching operations, and a copper sulfate plant (Attachment 1 and aerial photograph below). Ore mined at the facility contains an average concentration of approximately 0.23 percent (0.23%) copper and 0.030% molybdenum.



Copper concentrates and molybdenum oxide are the primary products produced at the facility. Rhenium, a rare metal, is also produced at the facility.

The copper/molybdenum ores are milled to reduce the particle size of the ore. The ground ore undergoes copper/molybdenum flotation which separates the copper/molybdenum from the host rock or "gangue minerals." Final separation and concentration of the copper and molybdenum ores occur in the molybdenum flotation circuit. The final copper concentrate is dried prior to staging at the copper concentrate

loading area before shipment to the Freeport-McMoRan Miami, Inc. copper smelter located at Claypool, Arizona for further processing.

The molybdenum (moly) concentrate generated at FM-Sierrita and shipped from other off-site sources (e.g., Freeport-McMoRan Bagdad, Inc., Bagdad, Arizona) is processed into molybdenum oxide at the FM-Sierrita facility. Impurities (e.g., copper and lead sulfide) contained in the moly concentrate must be removed prior to roasting using a hot ferric chloride leach. After the impurities have been removed, the moly containing material, in the form of molybdenum disulfide (MoS_2), is dried and then stored prior to roasting. The moly disulfide is roasted in one of two roasters, converting the MoS_2 to molybdenum trioxide (MoO_3). The roaster off-gas containing sulfur dioxide is passed through an electrostatic precipitator (ESP) then through a lime scrubber with an associated mist eliminator.

The leach thickner overflow from the ferric chloride leach is combined with other process wastes (e.g., lime scrubber bleed) then discharged to the Moly Decant Pond. At the Moly Decant Pond the combined process and waste streams are mixed with barren raffinate from the copper SX/EW plant. This mixture is then applied to the copper dump leach pads (also known as the Active Leach Area).

The off gases from moly roaster also contain rhenium (Re) oxide (Re_2O_7). Re is condensed, collected, scrubbed, and concentrated via solvent extraction and ion exchange (Attachment 2). Additional concentration of the Re is performed using ammonium perchlorate and hydrogen reduction. The product is scrubbed with a caustic solution as final refinement process. Some process wastes [e.g., Re solvent extraction raffinate (barren solution)] generated during the Re refinement process are mixed with moly process wastes and discharged to the Moly Decant Pond.

Low grade sulfide and oxide copper ores and process wastes (e.g., SX plant crude) are placed in the Active Leach Area. Raffinate [diluted sulfuric acid and process wastes (e.g., Moly Decant Pond wastewaters)] are applied to the Active Leach Area. The resulting leachate (pregnant leach solution or PLS) is collected and piped to the Solvent Extraction (SX) plants. At the SX plants the PLS is mixed with solvent (diesel range petroleum product) and additives that remove the copper from the PLS. After the solution has been stripped of copper, the barren solution (raffinate) is returned to the Active Leach Area. "Crud" consisting of solids, residual petroleum as diesel, and/or debris generated from the SX plant is collected and placed onto the Active Leach Area.

The copper-laden solvent is processed (transferring the copper in the solvent to an electrolyte). The barren solvent is recycled back into the SX process. The copper-laden electrolyte is piped to the electrowinning plant located at the off-site Twin Buttes facility where the copper is plated onto steel cathodes (see aerial photograph Page 6). Lead metal is used as the anode and becomes spent as lead flake. The barren electrolyte is returned back to the SX plant area. Lead flake generated during the electrowinning process is placed in plastic 55-gallon containers. The containers are kept open to allow the wet

material to air dry. Filled containers of lead flake are shipped to the Doe Run secondary lead smelter located at Bixby, Missouri where the lead is reclaimed.

Hazardous wastes, universal wastes, and used oil are generated at the facility. Hazardous wastes are accumulated in satellite accumulation containers located throughout the facility (Attachment 3). Full satellite accumulation containers are transferred to the less than 90-day accumulation area located at the Central Accumulation Building. The wastes are held in the Central Accumulation Building until shipped off-site to a permitted Treatment/Storage/Disposal (TSD) facility.

Other operations at FM-Sierrita facility include, but are not limited to:

- truck maintenance
- small vehicle maintenance
- laboratories (moly and rhenium)
- plant maintenance
- SX shop
- equipment parts and hazardous materials warehousing
- hazardous and non-hazardous waste accumulation

Facility Inspection

The facility inspection did not include facilities associated with the copper and molybdenum flotation circuits.

Additionally to performing a walk-through inspection and records review, the EPA inspectors obtained waste samples. The EPA inspectors determined the number, location, and type of samples during the walk-through portion of the CEI. Sample collection and processing was performed under the supervision of EPA. EPA's contractor, Eastern Research Group (ERG), assisted the EPA with waste sampling and data collection. Split samples obtained by the EPA were provided to FM-Sierrita. FM-Sierrita was responsible for storing and transporting split samples to their selected analytical laboratory. Sample collection and analyses was performed in accordance with the procedures described in Attachment 4 of this report.

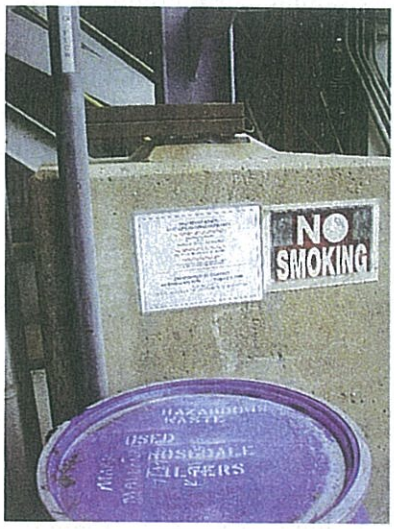
The following FM-Sierrita areas were inspected and/or sampled:

1. Moly Processing Area;
2. Rhenium Processing Area;
3. Moly Decant Pond;
4. Central Storage Building;
5. Salvage Storage Yard;
6. Mill Lab/Core Analytical Building;
7. Warehouse;
8. Mine Truck/Cat Shops;
9. Twin Buttes Electrowinning Facility;
10. Small Vehicle Maintenance, and
11. SX Plant.

1. Moly Processing Area

The molybdnenum concentrate (molybdenum sulfide) generated at the facility and obtained from other ore processing operations (Freeport-McMoRan Bagdad, Inc.) undergoes chemical processing to make a molybdenum trioxide. Heated ferric chloride

solution is used to digest and remove impurities from the molybdenum concentrate to generate a leach thickener overflow, which is mixed with other waste streams before being applied to the Active Heap Leach Area (see Page 5 above for discussion of heap leach processing). The leach thickener overflow exhibits the hazardous characteristic for both lead and chromium.

Photograph Number	Description	Photograph
1-1	Stitched panoramic photograph of Moly Processing Area.	
1-2	Satellite accumulation area located within Moly Processing Area. Signage states: 1. only one container per wastes stream, 2. maximum of 55-gallon of waste accumulated at point, and 3. satellite accumulation container must be kept closed except when adding or removing wastes from the container.	

Photograph Number	Description	Photograph
1-3	Moly Processing Area. Satellite accumulation containers. Containers are marked and labeled, as required. No potential violations were observed at this hazardous waste satellite accumulation point.	

Moly Leach Thickener Overflow

On August 11, 2009, a sample of the Moly Leach Thickener Overflow (MLTO) was obtained (SP-01, Attachment 4[1]). The liquid sample was analyzed for toxic characteristic leaching procedure (TCLP) metals, total metals, and pH.

The results of the sample analyses are summarized below in the following table:

Sample ID	TCLP[2] Cr	TCLP Pb	Total[3] Cu	Total Cr	pH
SP-01	**14***	**17***	520	13	2.3

***Bold** = Sample exhibits characteristics of a RCRA hazardous waste (D007; D008).

Based on the analytical results listed above, the MLTO is characteristically-hazardous for chromium and lead, and is acidic. Application of the characteristically-hazardous overflow to the Active Heap Leach Area may be a use constituting disposal. Materials used in a manner constituting disposal are solid wastes even if the wastes are legitimately recycled (40 CFR § 261.2(2)(e)(1), and Column 1 of Table 1 in 40 CFR § 261.2). Hazardous wastes that are recycled are "recyclable materials" (40 CFR § 261.6(a)(1)). Recyclable materials used in a manner constituting disposal are required to comply with 40 CFR § 266.20. 40 CFR § 266.20 requires the recyclable material to meet the applicable Land Disposal Restrictions (LDRs) prior to placement on the land. The characteristically-hazardous MLTO does not meet the treatment standards for chromium and lead.

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[1] Attachment 4 of this report is a draft copy of the Analytical Results Memorandum prepared by Eastern Research Group (ERG) for the FM-Sierrita facility. The report provides a description of the samples obtained at FM-Sierrita, the sample preservation methods, analytical procedures, and results of all the analyses performed.

[2] TCLP metal concentration reported as milligrams per liter (mg/L)

[3] Total metal concentration of liquid sample reported as mg/L.

The major concern with the application of the MLTO to the Active Heap Leach Area is whether or not the application of the overflow is legitimate recycling. Under 40 CFR § 261.2(c)(1)(ii) commercial chemical products are legitimately recycled if applied to the land, and that is the product(s) ordinary manner of use. Normal feedstocks for heap leaching are water, acid (primarily sulfuric acid), and ore. The MLTO appears to be used as a substitute for sulfuric acid normally purchased by FM-Sierrita for application to the Active Heap Leach Area. [4]

Criteria which EPA has stated that must be considered when determining legitimacy of recycling are:

- whether there are "toxics along for the ride;"
- low amounts of recoverable materials plus presence of non-contributing hazardous constituents in the waste;
- whether the material is being speculatively accumulated, and/or
- the recycled material or waste provides an "useful contribution" to the recycling process.[5]

There appears to be no other identified sources of the chromium and lead contained in the MLTO other than the ore. The MLTO would appear to contribute to the acid value of the raffinate that will be applied to the Active Heap Leach Area. The MLTO does not appear to be speculatively accumulated.

Additional information regarding the MLTO is required in order to determine if the material is being legitimately recycled. Additionally, mass-balances of the the non-contributing, characteristically-hazardous metals observed in the MLTO and other process/waste streams must be developed and obtained to verify that the source(s) of the chromium and lead observed in the MLTO is from the ore.

Lime Scrubber Bleed

Sulfur dioxide from the molybdenum roaster is scrubbed using lime. Bleed from the lime scrubber is wasted to the Moly Decant Pond. On August 11, 2009, a sample of the Lime Scrubber Bleed (LSB) was obtained (SP-03). The liquid sample was analyzed for TCLP metals, total metals, and pH.

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[4] Sulfuric acid purchased by FM-Sierrita is manufactured at the Freeport-McMoRan-Miami, Inc., Sulfuric Acid Plant.

[5] See 50 *Federal Register* (FR) 638 (1/4/85), 52 FR 17013 (5/6/87), 53 FR 522 (1/8/88), 63 FR 28587 (5/26/1998), and 73 FR 64701-64710 for examples of recycling legitimacy criteria.

The results of the sample analyses are summarized below in the following table:

Sample ID	TCLP Cr	TCLP Pb	Total Cu	Total Cr	pH
SP-03	BDL	BDL	BDL	BDL	**12.5***

***Bold** = Sample exhibits characteristics of a RCRA hazardous waste (D002).
BDL = Below Detection Limits.

The LSB is mixed with acidic process (i.e., undergoes neutralization) and hazardous wastes at the Moly Decant Pond, and is ultimately applied to the Active Heap Leach Area. Elementary neutralization of corrosive-only hazardous waste is exempted from RCRA permitting requirements provided that the neutralization is performed in a container or tank (elementary neutralization unit[6]), as defined in 40 CFR § 260.10. If LSB is treated in a tank, the tank is not required to meet 40 CFR § 265 Subpart J requirements.

Based on the limited analytical data developed for the LSB, it does not appear that this waste stream would exceed any of the LDR Universal Treatment Standards listed in 40 CFR § 268.48 (Attachment 4).

Other than for neutralizing and disposal, the analytical data developed indicates that there is no benefit of mixing the LSB with the other process and hazardous wastes. The LSB appears to be a strong base. Strong acidic solutions are required to be applied to the Active Heap Leach Area in order to extract copper from the ore. EPA requires additional information regarding the LSB in order to determine why FM-Sierrita discharges this waste stream to the Moly Decant Pond.

2. Rhenium Processing Area

On August 11, 2009, two process/waste samples were obtained from this area: 1. Rhenium Solvent Extraction Raffinate (SP-02) and 2. Ferric Solution Leach Bleed (SP-04). The liquid samples were analyzed for TCLP metals, total metals, and pH.

The results of the sample analyses are summarized below in the following table:

Sample ID	TCLP As	TCLP Cr	TCLP Pb	TCLP Se	pH
SP-02	**9***	**10***	**6***	**3.3***	**0.8***
SP-04	BDL	BDL	4.2	BDL	**<0***

***Bold** = Sample exhibits characteristics of a RCRA hazardous waste (D002, D004, D007, D008, and/or D010).
BDL = Below Detection Limits.

[6] Mixing corrosive-only hazardous wastes with TCLP or TCLP/corrosive wastes to neutralize the waste would not meet the definition of elementary neutralization (40 CFR § 270.2).

Rhenium Solvent Extraction Raffinate (SP-02)

As with the Moly Leach Thickener Overflow, the process which generates the Rhenium Solvent Extraction Raffinate (RSER) mineral processing waste is not listed in 40 CFR §§ 261.4(b)(7)(ii). Therefore, any mineral processing wastes generated from this process, which are characteristically-hazardous, may be subject to RCRA hazardous waste management requirements. The RSER is discharged along with other waste and process streams to the Moly Decant Pond. As previously stated, the effluent from the Moly Decant Pond is eventually applied to the Active Heap Leach Area.

Based on the analytical results listed in the above table, the RSER (SP-02) is characteristically-hazardous for arsenic, chromium, lead, and selenium, and is corrosive. The RSER process/waste stream is managed in the same manner as the MLTO process/waste stream: 1. used as a product substitute for sulfuric acid and 2. is not speculatively accumulated. The question whether or not the observed use of the RSER process/waste stream is being "legitimately recycled" cannot be fully answered until further information regarding the RSER and other process/waste streams is obtained (See MLTO discussion Pages 9 and 10 above).

Ferric Solution Leach Bleed (SP-04)

The source of the Ferric Solution Leach Bleed (FSLB) is not a mineral processing operation that is listed in 40 CFR §§ 261.4(b)(7)(ii). Therefore, any mineral processing wastes generated from this process, which are characteristically-hazardous, may be subject to RCRA hazardous waste management requirements. The FSLB is discharged along with other waste and process streams to the Moly Decant Pond. As previously stated, the effluent from the Moly Decant Pond is eventually applied to the Active Heap Leach Area.

Based on the analytical results listed in the above table, the FLSB (SP-04) is characteristically-hazardous due to the low pH value (D002, corrosive). The RSER process/waste stream is managed in the same manner as the MLTO process/waste stream: 1. used as a product substitute for sulfuric acid and 2. is not speculatively accumulated. There does not appear to be any significant "toxics along for the ride" observed in the process/waste stream.

3. Moly Decant Pond

The Moly Decant Pond is a concrete constructed basin that receives various waste and process streams from the Moly and Rhenium process areas, and probably from other areas of the facility. The waste and process streams are mixed in the basin prior to being pumped to a raffinate pond.

On August 11, 2009, a liquid sample from the Moly Decant Pond was obtained and analyzed for TCLP metals, total metals, and pH. The results of the sample analyses are summarized below in the following table:

Sample ID	TCLP Cr	TCLP Pb	Total Cu	Total Cr	pH
SP-05	**15***	**18***	510	16	2.1

***Bold** = Sample exhibits characteristics of a RCRA hazardous waste (D007 and D008).
BDL = Below Detection Limits.

As previously stated, the waste and process waters identified on Pages 9 through 12 above are not derived from any mineral processing operation that is listed in 40 CFR §§ 261.4(b)(7)(ii). Additional waste and process waters may be discharged to the basin.

Due to the fact the Moly Decant Pond mixture waste and process waters contained in the basin is not derived from any exempt processes, the combined waste and process water may be subject to RCRA hazardous waste management requirements. Based on the analytical results listed in the above table, in the Moly Decant Pond the mixture of waste and process streams (SP-05) is characteristically-hazardous for chromium and lead, and is acidic.

The analytical results of the Moly Decant Pond mixture of hazardous and process wastes indicate that treatment of characteristically-hazardous mixture is occurring in the basin (i.e., pH reduction). Additionally, dilution of the characteristically-hazardous waste and process streams is occurring in the basin. For example the Rhenium Solvent Extraction Raffinate stream fails the TCLP for arsenic and selenium, and has a total arsenic and selenium concentration of 8.7 and 3.4 mg/L, respectively. The Moly Decant Pond mixture does not fail TCLP for arsenic and selenium. The total arsenic and lead concentrations observed in the Moly Decant Pond hazardous and process waste are 1.0 and 0.10 mg/L, respectively. Dilution of hazardous wastes to meet a concentration-based treatment standard(s) prior to land disposal is prohibited by 40 CFR § 268.3.

Sludge accumulated in the Moly Decant Pond may not be exempt from RCRA if the sludge exhibits a RCRA characteristic (see 40 CFR §§ 261.21, 261.22, 261.23 and/or 261.24). Additionally, the effluent prior to being land applied may be required to meet LDR treatment standards (see 40 CFR §§ 268.40 and 268.48). Additional process and waste information is required in order to determine applicability of LDR treatment standards to the Moly Decant Pond effluent.

The Moly Decant Pond is a concrete basin (Attachment 4, Photograph No. 7). There was insufficient information obtained during the CEI to determine if the Moly Decant Pond is tank or a surface impoundment. The "parking lot" test would be required to be performed by FM-Sierrita in order to determine if the Moly Decant Pond is a tank or surface impoundment (Attachment 5).

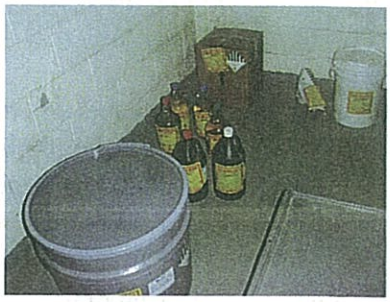
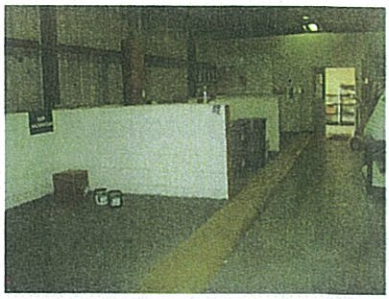
4. Central Accumulation Building

A secure metal-framed and metal exterior building is used to accumulate hazardous and non-hazardous wastes. The building interior is composed of storage bays constructed of concrete blocks on a concrete slab. The purpose of the bays is to separate and accumulate wastes by waste types (e.g., corrosive). This arrangement is performed to ensure that incompatible wastes are not stored together.

Full hazardous and non-hazardous waste satellite accumulation containers are transferred to the Central Accumulation Building prior to transport to an off-site, permitted TSD facility. Additionally, smaller quantities of hazardous wastes are transported to the Central Accumulation Area were the wastes are segregated by waste type (e.g., corrosive). Once sufficient quantities of hazardous wastes are accumulated, the smaller containers are bulked or consolidated into lab-pack containers.

Universal wastes are accumulated in a secure area located outside the Central Accumulation Building.

Photograph Number	Description	Photograph
4-1	Universal waste batteries are segregated by battery type (e.g., lead-acid) and placed in the appropriate marked container. No issues of concern were identified for the universal waste battery accumulation area.	
4-2	Wastes such as the paints and two part epoxies pictured in the photograph are transferred to the Central Accumulation Building. The material is placed on a pallet outside the building prior to being classified and transferred into the Central Accumulation Building.	

Photograph Number	Description	Photograph
4-3	Inside the Central Accumulation Building. One of the bays used to accumulate hazardous wastes. Note: concrete floor is in good condition with no significant cracks or staining.	
4-4	Interior view of the Central Accumulation Building. Note: concrete floor is in good condition with no significant cracks or staining.	
4-5	Open full container of discarded D001 adhesives. The accumulation start date had not been placed on the container label.	

Photograph Number	Description	Photograph
4-6	Label of container pictured in Photograph 4-5 above. The lid to the container is missing (i.e., open container) and the accumulation start date is missing from the container label.	

5. Salvage Storage Yard

The Salvage Storage Yard is a chain-linked fenced in area where mostly discarded equipment and materials are stored.

Photograph Number	Description	Photograph
5-1	Outside the fence, north side of the Salvage Storage Yard, a five-gallon pail of unknown material was observed. The container label has faded and peeled away apparently from being stored outside.	

FM-Sierrita representatives stated that a contractor had left the containerized material at the site. Reportedly, contractor agreements with FM Sierrita require the contractor to be responsible for any hazardous materials brought onto the site by the contractor.

6. Mill Lab/Core Analytical Building

Laboratory rinse waters are discharged to a neutralization sump. Treated sump water is piped to a holding tank known as the Neutralization Tank. The collected treated water is used as a process water in the Mill Plant. On August 12, 2009, a solid sample from the sump (SP-05) and a liquid sample from Neutralization Tank (SP-07) were obtained. The samples were analyzed for TCLP metals, total metals, TCLP semi-volatile organic compounds (SVOCs), and total SVOCs, polychlorinated biphenyls (PCBs), congeners and pH.

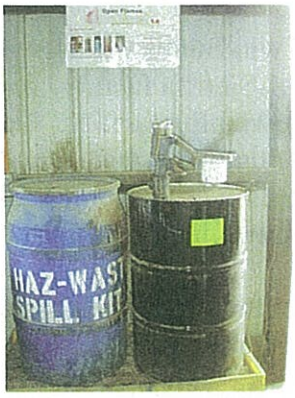
No issues of concern were identified in the analytical results (Attachment 4). Additionally, no issues of concern were identified for satellite accumulation containers located in each of the laboratories.

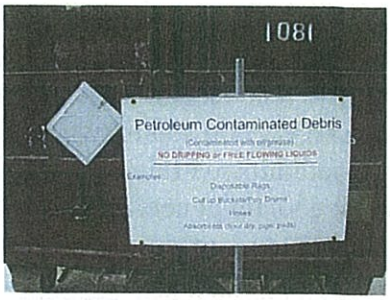
7. Warehouse

No issues of concern were identified in the warehouse used to store equipment parts and hazardous materials.

8. Mine Truck/Cat Shops

Large pieces of equipment are maintained by FM Sierrita. Routine preventative maintenance as well as equipment repairs is performed at the Mine Truck/Cat Shops facility. The largest waste stream by volume generated at this location is used oil. The used oil is collected in two large aboveground storage tanks. Oily waste and debris (e.g., oil contaminated floor dry, rags, etc.) are accumulated in a 20 to 40 yard cubic container. Spent coolant generated by the facility is also accumulated in an aboveground storage tank.

Photograph Number	Description	Photograph
8-1	Satellite accumulation point located at the Cat Shop area. The container to the right is equipped with an aerosol can puncturing device. A canister used collect any vapors from the can puncturing process is also connected to the container. The closed container is in good condition and is marked and labeled, as required. No significant free liquids were observed within the secondary containment pallet below the satellite accumulation container.	

Photograph Number	Description	Photograph
8-2	Used oil accumulation tanks. Tanks are marked and labeled, as required. No significant liquid accumulation was observed within the secondary containment area. Note: Tanks are included in the facility's Spill Prevention, Control, and Countermeasures Plan (SPCC).	
8-3	Contents of 20 to 40 cubic-yard roll-off container used to accumulate oily debris. Free liquid was observed in the orange bucket pictured in the middle of the photograph.	
8-4	Signage posted outside oily debris accumulation container. Note that free liquids are not to be disposed in the roll-off container.	

9. Twin Buttes Electrowinning Facility

The Twin Buttes Electrowinning Facility is located approximately 4 miles northeast of the FM-Sierrita facility. Pregnant Leach Solution from FM-Sierrita is piped to the electrowinning facility. The copper is plated onto lead anodes. As a result of plating copper onto the steel cathodes, lead flake is formed (see also Page 5 for further description of the copper plating process). The lead flake generated at the Twin Buttes electrowinning facility is collected in 55-gallon plastic containers.

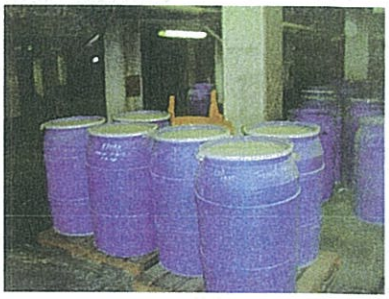
Approximately 20 containers of lead flake were observed underneath the electrowinning area. Approximately half of the containers were closed and the other half of the containers were open.

Samples from three lead flake containers were obtained and analyzed for TCLP metals and total metals. The results are summarized below:

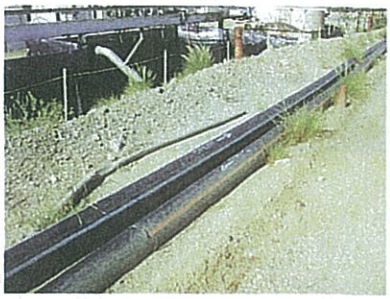
Sample ID	Total Pb[7]	TCLP Pb	Total Cu	Total As	TCLP As	Total Se	TCLP Se
SP-08	39,000	**19***	23,000	56	BDL	< 2.5	BDL
SP-09	55,000	**20***	5,300	100	BDL	< 5.0	BDL
SP-10	63,000	**9***	6,500	91	BDL	< 5.0	BDL

***Bold** = Sample exhibits characteristics of a RCRA hazardous waste (D008).
BDL = Below Detection Limits.

The accumulated lead flake is shipped to the Doe Run secondary lead smelter located at Bixby, Missouri where the lead is reclaimed.

Photograph Number	Description	Photograph
9-1	Containerized lead flake located at the Twin Buttes Electrowinning Facility. Electrowinning operations are located on the floor above.	
9-2	Contents of one of the lead flake containers.	

[7] Total metals for solid samples reported as milligrams per kilogram (mg/kg).

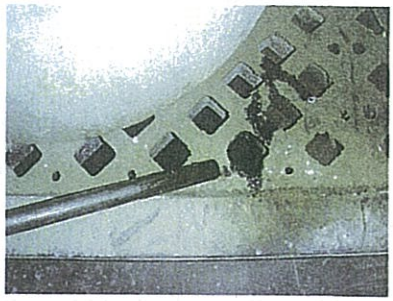
Photograph Number	Description	Photograph
9-3	Contents of one of the lead flake containers. Note: General solid waste is being accumulated in the container.	
9-4	Pipe lines which carry pregnant solution from the SX Plant to the electrowinning facility and return "spent" solution back to the SX Plant.	

General trash was observed in several of the lead flake accumulation containers. FM Sierrita should initiate procedures to ensure that only lead flake that can be reclaimed at the Doe Run facility is accumulated in the containers.

10. Small Vehicle Maintenance Building

A small vehicle (e.g., pick-up trucks) maintenance building is located at FM-Sierrita. Used oil, coolant, and solvent wastes are generated at this location.

Photograph Number	Description	Photograph
10-1	Satellite accumulation area for the Small Vehicle Maintenance Building. No issues of concern were identified for any of the aerosol, used coolant, and scrap metal satellite accumulation containers observed. All containers were properly labeled.	

Photograph Number	Description	Photograph
10-2	The secondary containment pallets pictured in Photograph 10-1 above contained approximately 4 inches accumulated oil and water. Any accumulated liquids in secondary containment pallets should be removed as soon as practical.	
10-3	The approximately 350-gallon tank pictured is used to accumulate used oil. The tank is marked and labeled, as required. Secondary containment did not contain any appreciable quantities of accumulated liquids.	

11. SX Plant

A satellite accumulation point is located at the SX Plant maintenance shop. No issues of concern were identified for the satellite accumulation container.

A clay based waste is generated at the SX Plant. The waste referred to as "crud" is collected in a bin. Once the bin is filled, the crud is removed and applied to Active Leach Heap Area.

On August 12, 2009, a sample of the "crud" was obtained (SP-11). The sample was analyzed for TCLP metals, total metals, TCLP SVOCs, and SVOCs. No issues of concern were identified in the analytical results. The total copper concentration contained in the crud was 1,700 mg/kg.

Photograph Number	Description	Photograph
11-1	Bin is used to accumulate "crud."	

Photograph Number	Description	Photograph
11-2	Contents of "crud" bin pictured in Photograph 11-1 above.	

Record Review

Record	Year(s)	Potential Violations
Manifests	2007 to August 2009	None
Land Disposal Restriction (LDR) Notifications	2007 to August 2009	None
Biennial Report	2007	None
Contingency Plan	Not Applicable	FM-Sierrita's contingency plan lacked the descriptions and capabilities of each piece of emergency response equipment. AAC R18-8-262.A; AAC R18-8-265.A (40 CFR §§ 262.34(a)(4); 265.52(e).
Inspection checklists	2007 to August 2009	None
Training Records and Documentation	Not Applicable	Emergency coordinators identified in the contingency plan had not been trained to the contingency plan. AAC R18-8-262.A; AAC R18-8-265.A (40 CFR §§ 262.34(a)(4); 265.16(a)(1); 265.16(a)(3).

The primary and secondary emergency coordinators (ECs) for the facility reside in FM Sierrita's Safety Department. Any emergency response activities at the facility will involve multiple departments. The ECs will coordinate emergency response actions (e.g., hazardous waste spills) that involve one or more FM-Sierrita departments. For a hazardous waste emergency response action, the ECs will ensure that the necessary company resources are committed and the contingency plan is implemented. Appropriately trained FM-Sierrita environmental and safety staff will to the hazardous waste emergency response action.

Per 40 CFR § 265.16 (incorporated by reference ACC R18-8-265.A), the ECs require training to ensure that the individuals are familiar with the contingency plan, and with the

company's capabilities to response to a hazardous waste emergency response action. During the CEI, FM Sierrita representatives were not able to demonstrate that the designated ECs had been properly trained.

The following Training Plan related information was not obtained for the ECs during the CEI:

- EC Job Description
- EC Initial Training Requirements
- EC Annual Training Requirements

Post-Inspection

On January 13, 2010, Mr. Chad Fretz, Manager-Environment, Land & Water, FM-Sierrita submitted the following documentation/information to the EPA:

- Documentation that the revised Contingency Plan was sent to the required agencies.
- List of equipment capabilities in the Contingency Plan.
- Documentation that the Emergency Coordinators have received Contingency Plan training.
- Martha Mottley's RCRA training certificate.

Attachment 6 contains copies of the submitted documentation/information.

POTENTIAL VIOLATIONS
of
Arizona ACC Title 18 and RCRA 40 CFR
Hazardous Waste Management Regulations

1. Hazardous Waste Accumulation Container Management

Arizona regulation AAC R18-8-262.A, incorporating by reference 40CFR §262.34(a)(1)(i), states that a generator may accumulate hazardous waste in a container provided that the container complies with 40 CFR 265 Subpart I (incorporated by reference; see AAC R18-8-265.A) As stated in AAC R18-8-265.A [40 CFR §265.173(a)], "a container holding hazardous waste must always be closed during storage, except when it is necessary to add or remove waste."

Finding: An open full 5-gallon container of discarded D001 adhesives was observed in the Central Accumulation Building. See Page 15, Photograph 4-5.

Facility Response: Facility personnel corrected this potential violation on August 11, 2009.

2. Accumulation Start Date Marking

The accumulation start date of a container holding hazardous waste must be marked on the container and visible for inspection. ACC R18-8-262.A (40 CFR 262.34(a)(2)

Finding: A five-gallon container of discarded D001 adhesives was labeled. However, the accumulation start date was missing. See Page 16, Photograph 4-6.

Facility Response: Facility personnel corrected this potential violation on August 11, 2009.

3. Waste Determination

A facility which generates wastes, as defined by ACC R18-8-261.A (40 CFR 261.2) must determine if waste generated by the facility is a hazardous waste. ACC R18-8-262.A and R18-8-262.D (40 CFR 262.11)

Finding: A five-gallon container of unknown material or waste was observed outside the north end of the Salvage Storage Yard. Page 16, Photograph 5-1.

Facility
Response: FM Sierrita stated that the material was owned by a FM Sierrita contactor. FM Sierrita would investigate and provide EPA with any information regarding the material or waste that it obtained from the contractor. No information regarding the container contents has been submitted to the EPA.

4. Contingency Plan

The plan shall include a list of all emergency equipment at the facility (such as fire extinguishing systems, spill control equipment, communications and alarm systems (internal and external), and decontamination equipment), where this equipment is required. This list shall be kept up to date. In addition, the plan shall include the location and a physical description of each item on the list, and a brief outline of its capabilities. AAC R18-8-262.A; AAC R18-8-265.A (40 CFR §§ 262.34(a)(4); 265.52(e).

Finding: FM Sierrita's contingency plan was missing the required equipment capabilities and item description.

Facility
Response: On January 13, 2010, FM Sierrita submitted documentation that the potential violation had been corrected and that a revised contingency plan had been submitted to local emergency response agencies.

5. Emergency Coordinator Training

Facility personnel shall successfully complete a program of classroom instruction or on-the-job training that teaches them to perform their duties in a way that ensures the facility's compliance with the requirements of this chapter. The owner or operator shall ensure that this program includes all the elements described in the document required under subsection (d)(3) of this section. AAC R18-8-262.A; AAC R18-8-265.A (40 CFR §§ 262.34(a)(4); 265.16(a)(1))

Finding: FM Sierrita Emergency Coordinators (ECs) had not received the required hazardous waste management training specific to their duties.

Facility
Response: On January 13, 2010, FM Sierrita submitted documentation that the designated ECs have received Contingency Plan training.

Follow-up Information; FM Sierrita is requested to provide the following Personnel Training Plan information for primary and secondary ECs located at the facility:

- EC Job Title and Job Description
- EC Initial Training Requirements
- EC Annual Training Requirements

POTENTIAL VIOLATIONS
of
Arizona Revised Statutes Title 49 and RCRA 40 CFR
Used Oil Management Regulations

1. Used Oil Management

In accordance with ARS § 49-803, the following used oil management practices are prohibited:

A. Used oil shall not be used or disposed of by any of the following methods:

1. Discharge into sewers or waters of the state as defined in section 49-201 except pursuant to a permit issued by appropriate regulatory authorities.

2. Incineration except at a facility authorized to incinerate hazardous waste under section 49-922 or the federal act. Burning for energy recovery is not considered incineration for purposes of this section, unless the director determines pursuant to rule that the purpose of the burning is for destruction of listed or characteristic hazardous waste rather than energy recovery.

3. Disposal on land unless the used oil is disposed of in a landfill that is subject to 40 Code of Federal Regulations part 257 or 258 and that has an approved solid waste facility plan. This prohibition does not apply to used oil that is used as an ingredient in an explosive material.

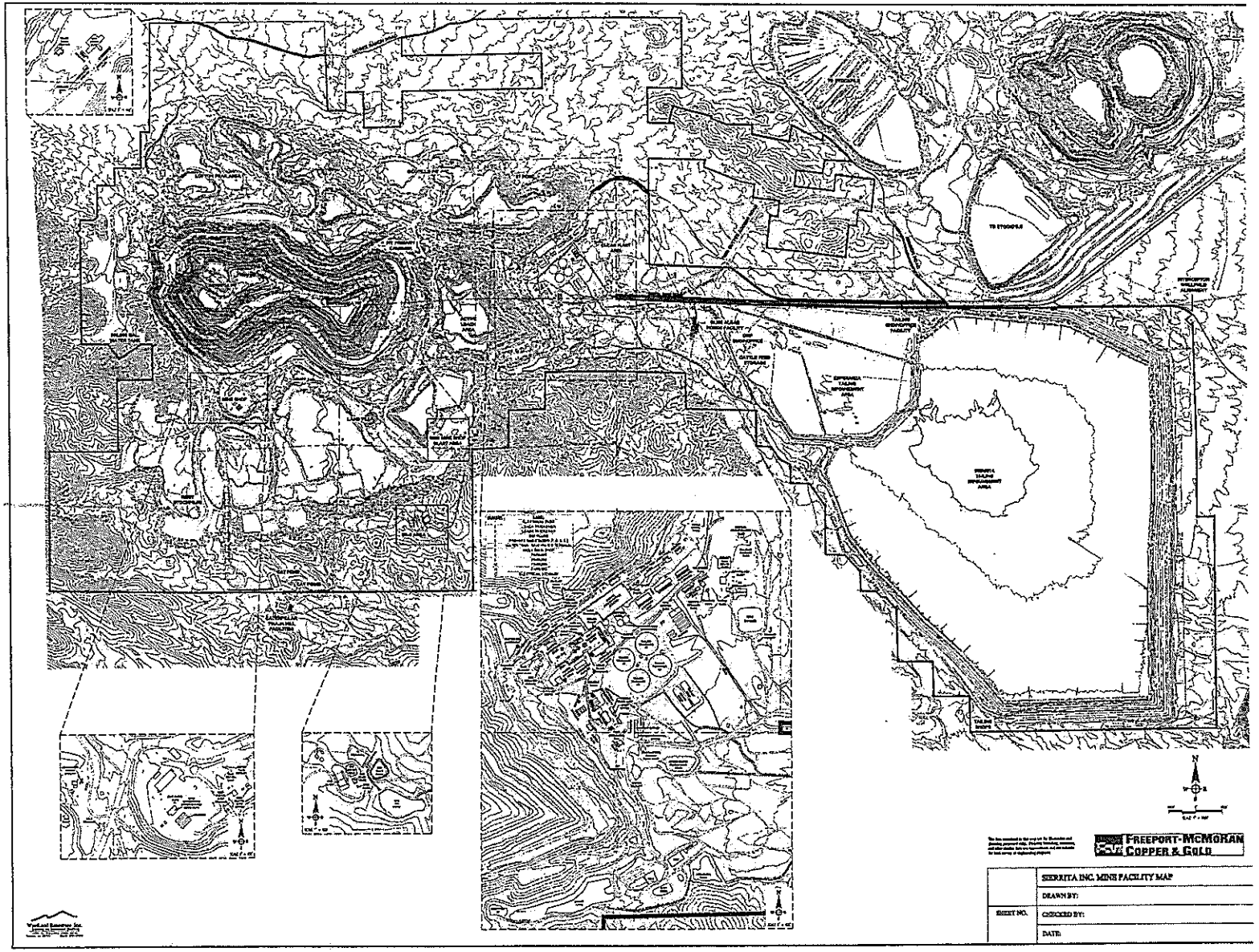
4. Dispersal as a dust suppressant or contact herbicide.

Finding: Free liquid used oil was observed in a small plastic bucket that had been disposed in a roll-off container. The roll-off container was located outside the Mine Truck/Cat Shop. Page 18, Photograph 8-3. FM Sierrita signage outside the dumpster stated that no free liquids were to be placed in the roll-off container.

Attachments

1. Sierrita, Inc. Mine Facility Map, Freeport-McMoRan Copper and Gold, undated.
2. Sierrita Rhenium SX Circuit Flowsheet, S. Feltman, August 11, 2009.
3. Satellite Accumulation Point Locations, undated.
4. Draft Memorandum, Analytical Results – Freeport-McMoRan Sierrita, Inc., Green Valley, Arizona, Eastern Research Group (ERG), dated November 6, 2009.
5. Faxback Documents: RO 12104 (April 8, 1993) and 12224 (undated), U. S. Environmental Protection Agency.
6. Follow-up to Freeport-McMoRan Sierrita, Inc. Inspection, January 13, 2010.

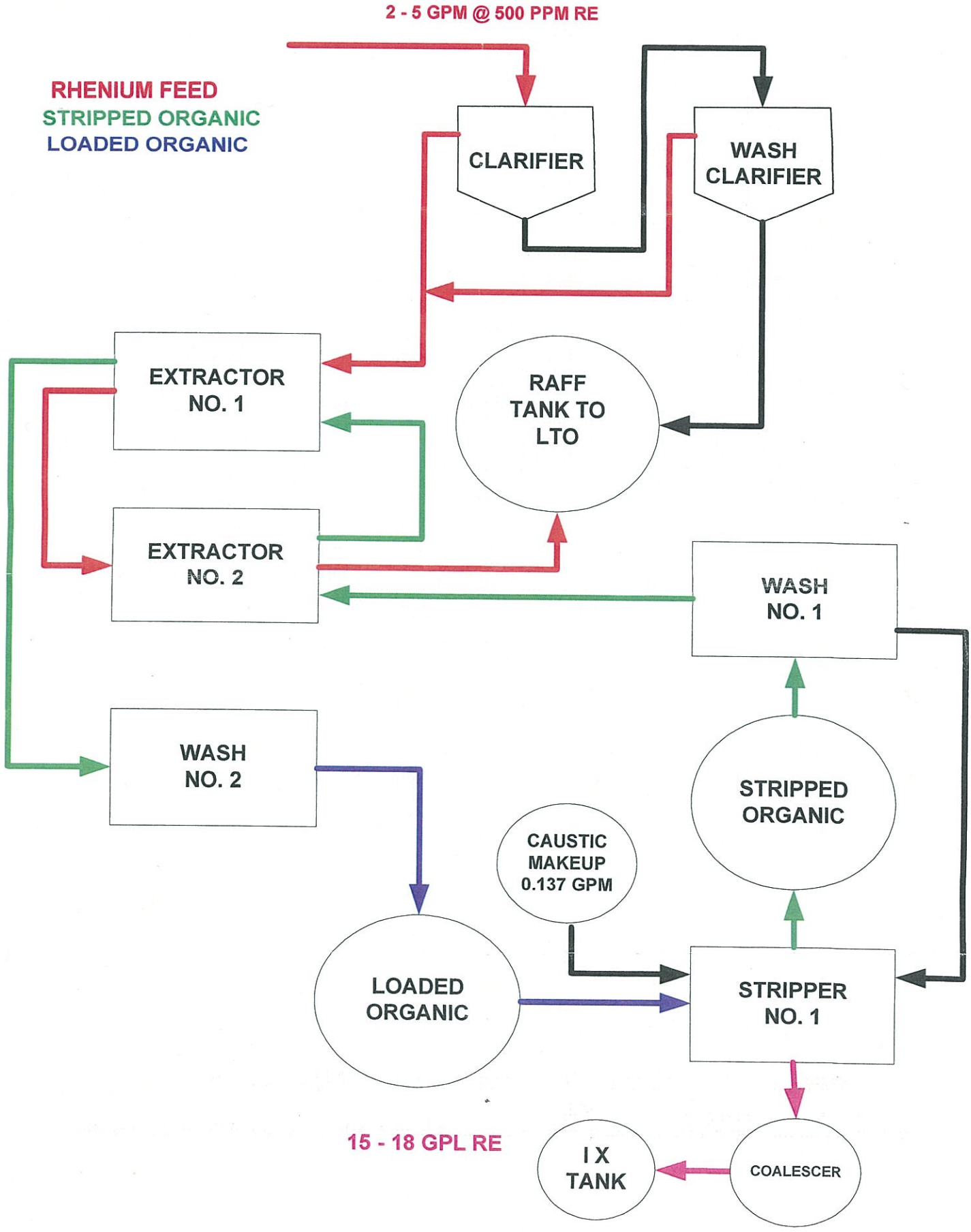
Attachment 1 – Sierrita, Inc. Mine Facility Map, Freeport-McMoRan Copper and Gold, undated


FREEPORT-MCMORAN
COPPER & GOLD
SIERRITA INC. MINE FACILITY MAP
DRAWN BY:
CHECKED BY:
DATE:
SHEET NO.

Attachment 2 – Sierrita Rhenium SX Circuit Flowsheet, S. Feltman, August 11, 2009

Not CBF

SIERRITA RHENIUM SX CIRCUIT



S. Feltman 8/11/2009SIERRITA SX FLOWSHEET

Attachment 3 – Satellite Accumulation Point Locations, undated

Attachment 3
FM-Sierrita
Satellite Accumulation Locations

1. Shovel Shop
2. Truck Shop
3. Mine Eng.
4. C/C Shop
5. CC 3rd Floor
6. Moly Processing
7. Plant Shop
8. Mill Driveway
9. E/I
10. SX Shop
11. Tailing Dam
12. TBEW
13. Sm Vehicle Fletchers
14. Rhenium SX
15. Lab (Moly)
16. Lab (RE)
17. CMP
18. Moly Float 4th Floor
19. CAT Shop[
20. Re Plant
21. SW Energy
22. Re Plant Wet Lab
23. Primary Crusher
24. Crystal Plant
25. Road Machinery

Attachment 5 – Faxback Documents: RO12104 (April 8, 1993) and 12224 (undated), U. S. Environmental Protection Agency

9483.1983(01)

TANK AND SURFACE IMPOUNDMENT, DEFINITIONS

8 APR 83

MEMORANDUM

SUBJECT: Determination of Tanks vs. Surface Impoundments

FROM: Bruce R. Weddle
Acting Director
State Programs and Resource Recovery Division (WH-563)

TO: Thomas W. Devine
Director
Air and Waste Management Division, Region IV

In your memorandum of March 23, 1983 you requested headquarters guidance on the subject of how regional offices should determine what constitutes a "tank", as opposed to "surface impoundment," for RCRA permitting purposes. I hope that the following will serve to clarify this issue.

Distinguishing a tank from a surface impoundment is, as you suggest, primarily an assessment of what provides the unit's structural support. In making this assessment, the unit should be evaluated as if it were free standing, and filled to its design capacity with the material it is intended to hold. If the walls or shell of the unit alone provide sufficient structural support to maintain the structural integrity of the unit under these conditions, the unit can be considered a tank. Accordingly, if the unit is not capable of retaining its structural integrity without supporting earthen materials, it must be considered a surface impoundment.

The units for which the State of Florida is requesting guidance should be assessed according to these criteria. From the sketches provided by Florida Power and Light, it would appear that the Sanford, Fort Myers, Manatee and St. Lucie units are probably surface impoundments, and that the Cutler unit may possibly be a tank. However, the information you submitted is not sufficient to enable us to make a definitive judgement in this regard. In order to support the contention that the units should be considered

tanks, you should request that Florida Power and Light submit engineering data and drawings which establish that each unit meets the above criteria.

QUESTION: What is the difference between a tank and a surface impoundment?

ANSWER: According to the April 15, 1983 guidance memo from Bruce Weddle to Region IV, the unit should be evaluated as if it were free standing and filled to its design capacity with the material it is intended to hold. If the walls or shell of the unit provide enough structural support to maintain structural integrity of the unit under such conditions, the unit is a tank. If the unit needs supporting earthen materials to maintain its structural integrity, it is a surface impoundment. Engineering data and drawings may be necessary to make this determination.

BOOZALLEN & HAMILTON, INC.
FAXBACK 12224

Attachment 4 – Draft Memorandum, Analytical Results, Freeport McMoRan Sierrita, Inc., Green Valley, Arizona, Eastern Research Group (ERG), dated November 6, 2009

ERG

MEMORANDUM

TO: Craig Haas and Van Housman, EPA

FROM: Julia Capri, Andrew Loll, and Joseph Watson, ERG

DATE: 6 November 2009

SUBJECT: **Analytical Results – Freeport-McMoRan Sierrita, Inc., Green Valley, Arizona**

1. INTRODUCTION

This memorandum summarizes the analytical results for samples collected during the August 2009 sampling trip to the Freeport-McMoRan Sierrita, Inc. (FMS) facility located near Green Valley, Arizona. The following analyses were performed for these samples:

- Toxicity Characteristic Leaching Procedure (TCLP) and total metals using the target analyte list (TAL) metals;
- TCLP and total semivolatile organic compounds;
- Polychlorinated biphenyls (PCBs); and
- pH.

Please note that all tables are located at the end of this memorandum.

On August 11 and 12, 2009, at the direction of the U. S. Environmental Protection Agency, Eastern Research Group, Inc. (ERG) collected samples at the FMS facility. Table 1 identifies the sample locations and types of analyses. A log of the photographs taken of the sampling points is found in Attachment A. . Liquid samples were collected from the leach thickener overflow (SP-01); the rhenium solvent extraction raffinate (SP-02); the lime scrubber bleed (SP-03); the ferric solution leach bleed (SP-04); the moly decant pond (SP-05); and the neutralization tank discharge (SP-07). Solid samples were collected from the analytical lab discharge neutralization sump (SP-06); three separate electrowinning lead flakes drums (SP-08, SP-09, and SP-10); and the solvent extraction crud (SP-11). One equipment rinseate was collected during the sampling episode. No metals were detected in the rinseate blank.

Additional information on the exchange of samples and laboratory analysis by Columbia Analytical Services are provided in the chain-of-custody forms at the end of the memorandum in Attachment B. Attachment C contains a discussion on sample QA/QC results from the lab. Attachment D contains sampling point location figures.

2. TCLP RESULTS

Tables 2 and 4 summarize the TCLP metal results for solid and aqueous samples, respectively, collected at the FMS facility and provide the TCLP limits and nonwastewater universal treatment standards (NUTS) for comparison. Tables 6 and 8 present the analytical results of the TCLP semivolatile organic sample analyses at the FMS facility and provide the TCLP limits and NUTS for comparison. TCLP leachates were prepared using the complete TCLP Extraction Procedure (Method 1311). Analytes are only discussed in this section if analytical results showed an exceedance of either the TCLP limits or the NUTS.

The liquid sample collected from the rhenium solvent extraction raffinate (SP-02) exceeded the TCLP for arsenic (9 mg/l; TCLP standard is 5 mg/l).

The liquid samples collected from the leach thickener overflow, rhenium solvent extraction raffinate, and the line scrubber bleed (SP-01, SP-02, and SP-05, respectively) exceeded the TCLP for chromium (14, 10, and 15 mg/l, respectively; TCLP standard is 5 mg/l).

The solid samples collected from the three electrowinning lead flakes drums (SP-08, SP-09, and SP-10, respectively) exceeded the TCLP and NUTS for lead (19, 22, and 9.0 mg/l, respectively; TCLP standard is 5 mg/l and NUTS standard is 0.75 mg/l). The liquid samples collected from the leach thickener overflow, rhenium solvent extraction raffinate, and the line scrubber bleed (SP-01, SP-02, and SP-05, respectively) exceeded the TCLP for lead (17, 6.0, and 18 mg/l, respectively; TCLP standard is 5 mg/l).

The liquid sample collected from the rhenium solvent extraction raffinate (SP-02) exceeded the TCLP for selenium (3.3 mg/l; TCLP standard is 1 mg/l).

3. TOTAL POLLUTANT RESULTS

3.1 Total Metals Results

Tables 3 and 5 summarize the total metals results for solid and aqueous samples, respectively, collected at the FMS facility and provide soil screening levels (SSLs) and wastewater universal treatment standards (WUTS) for comparison. Metal analytes are only discussed in this section if analytical results showed an exceedance of the SSL or WUTS.

3.1.1 Total Metals Soil Screening Level (SSL) Analysis for Solids Samples

Solid samples collected from two of the three electrowinning lead flakes drums (SP-09 and SP-10, respectively) exceeded the SSL for antimony (600 and 640 mg/kg, respectively; SSL standard is 410 mg/kg).

All solid samples (SP-06, SP-08, SP-09, SP-10, and SP-11) exceeded the SSL for arsenic (72, 56, 100, 91, and 3.1 mg/kg, respectively; SSL standard is 1.6 mg/kg).

The solid sample collected from the analytical lab discharge neutralization sump (SP-06) exceeded the SSL for copper (77,000 mg/kg; SSL standard is 41,000 mg/kg).

The solid samples collected from the three electrowinning lead flakes drums (SP-08, SP-09, and SP-10, respectively) exceeded the SSL for lead (39,000, 55,000, and 63,000 mg/kg, respectively; TCLP standard is 5 mg/l and NUTS standard is 0.75 mg/l).

The solid sample collected from the analytical lab discharge neutralization sump (SP-06) exceeded the SSL for thallium (100 mg/kg; SSL standard is 66 mg/kg).

3.1.2 Total Metals Wastewater Universal Treatment Standards (WUTS) Analysis for Liquid Samples

The liquid samples collected from the rhenium solvent extraction raffinate and the ferric solution leach bleed (SP-02 and SP-04, respectively) exceeded the WUTS for arsenic (8.7 and 1.5 mg/l, respectively; WUTS standard is 1.4 mg/l).

The liquid samples collected from the leach thickener overflow, rhenium solvent extraction raffinate, ferric solution leach bleed, and the moly decant pond (SP-01, SP-02, SP-04, and SP-05, respectively) exceeded the WUTS for chromium (13, 9.6, 2,200, and 16 mg/l, respectively; WUTS standard is 2.77 mg/l).

The liquid samples collected from the leach thickener overflow, rhenium solvent extraction raffinate, ferric solution leach bleed, and the moly decant pond (SP-01, SP-02, SP-04, and SP-05, respectively) exceeded the WUTS for lead (18, 5.8, 25, and 18 mg/l, respectively; WUTS standard is 0.69 mg/l).

The liquid sample collected from the ferric solution leach bleed (SP-04) exceeded the WUTS for mercury (2.3 mg/l, respectively; WUTS standard is 0.15 mg/l).

The liquid samples collected from the leach thickener overflow, rhenium solvent extraction raffinate, ferric solution leach bleed, and the moly decant pond (SP-01, SP-02, SP-04, and SP-05, respectively) exceeded the WUTS for nickel (6.8, 5.2, 1,100, and 8.4 mg/l, respectively; WUTS standard is 3.98 mg/l).

The liquid sample collected from the rhenium solvent extraction raffinate (SP-02) exceeded the WUTS for selenium (3.4 mg/l; WUTS standard is 0.82 mg/l).

The liquid samples collected from the leach thickener overflow, ferric solution leach bleed, and the moly decant pond (SP-01, SP-04, and SP-05, respectively) exceeded the WUTS for silver (0.52, 1.3, and 0.48 mg/l, respectively; WUTS standard is 0.43 mg/l).

The liquid samples collected from the leach thickener overflow, rhenium solvent extraction raffinate, ferric solution leach bleed, and the moly decant pond (SP-01, SP-02, SP-04, and SP-05, respectively) exceeded the WUTS for zinc (7.7, 5.8, 1,300, and 10 mg/l, respectively; WUTS standard is 2.61 mg/l).

3.2 Total Semivolatile Organic Compounds Results

Tables 7 and 9 summarize the total semivolatile organic compounds results for solid and liquid samples, respectively, collected at the FMS facility and provides the NUTS, WUTS, and SSLs for comparison. There were no exceedances of the NUTS, WUTS, or SSLs.

3.3 PCB Results

Tables 10 and 11 summarize the PCB congeners analyses for solid samples, respectively, collected at the FMS facility and provides the U.S. EPA Region III SSL (410 µg/kg total), NUTS (10,000 µg/kg total), and WUTS (100,000 ng/l total) for comparison. The solid sample collected from the analytical lab discharge neutralization sump (SP-06) exceeded the SSL for total PCBs (540 µg/kg total pentachlorobiphenyls, 462 µg/kg total hexachlorobiphenyls, 1,230 total PCBs; SSL standard is 410 µg/kg).

4. pH RESULTS

The liquid samples were analyzed for pH. The results are presented in Table 11. According to the pH measurements at the laboratory, the samples collected from the rhenium solvent extraction raffinate and the ferric solution leach bleed (SP-02 and SP-04, respectively) exceeded the corrosive limit (0.8 and <0 S.U., respectively; corrosive limit is < 2.0 S.U.).

Table 1. Sample Identification

Sample ID	Sampling Point Location	Sample Description	Date	Media	Analysis
SP-01	Leach Thickener Overflow 31 deg 52.442 min N 111 deg 06.365 min W One of the three waste streams (SP-01, 02, and 03) that are combined at a later point before discharge into the Moly Decant Pond.	Brownish solution with dark gray fine particulates. pH – 3-4 (pH paper) Temp – 31°C	08/11/2009; 13:39	Aqueous	TCLP Metals, Total Metals, pH
SP-02	Rhenium Solvent Extraction Raffinate 31 deg 52.492 min N 111 deg 06.357 min W One of the three waste streams (SP-01, 02, and 03) that are combined at a later point before discharge into the Moly Decant Pond.	Clear liquid. pH – 1 (pH paper) Temp – 32°C	08/11/2009; 14:02	Aqueous	TCLP Metals, Total Metals, pH
SP-03	Lime Scrubber Bleed 31 deg 52.500 min N 111 deg 06.341 min W One of the three waste streams (SP-01, 02, and 03) that are combined at a later point before discharge into the Moly Decant Pond.	Milky white liquid with white solids settled to the bottom. pH – 14 (using pH paper, facility in-line pH probe read 12.5) Temp – 32°C	08/11/2009; 14:30	Aqueous	TCLP Metals, Total Metals, pH
SP-04	Ferric Solution Leach Bleed 31 deg 52.457 min N 111 deg 06.315 min W	Black murky solution. pH – Field pH could not be taken. Temp – Very hot to the touch, facility estimated temperate to be 50°C.	08/11/2009; 14:50	Aqueous	TCLP Metals, Total Metals, pH
SP-05	Moly Decant Pond 31 deg 51.884 min N 111 deg 06.188 min W	Clear liquid, greenish. pH – 2 (pH paper) Temp – 31°C	08/11/2009; 15:12	Aqueous	TCLP Metals, Total Metals, pH, TCLP SVOA, Total SVOA, PCB Congeners

Table 1. Sample Identification

Sample ID	Sampling Point Location	Sample Description	Date	Media	Analysis
SP-06	Analytical Lab Discharge Neutralization Sump 31 deg 52.626 min N 111 deg 06.175 min W	Grayish black sludge, low moisture.	08/12/2009; 08:52	Solid	TCLP Metals, Total Metals, TCLP SVOA, Total SVOA, PCB Congeners
SP-07	Neutralization Tank Discharge 31 deg 52.557 min N 111 deg 06.231 min W	Grayish black liquid exiting 4" flexible plastic pipe. pH – 7 (pH paper) Temp – 31°C	08/12/2009; 09:25	Aqueous	TCLP Metals, Total Metals, pH, TCLP SVOA, Total SVOA, PCB Congeners
SP-08	Electrowinning Lead Flakes Drum 1 31 deg 54.426 min N 111 deg 04.047 min W GPS coordinate outside the warehouse at Twin Buttes where drums stored.	Light gray course and fine solids.	08/12/2009; 10:23	Solid	TCLP Metals, Total Metals
SP-09	Electrowinning Lead Flakes Drum 2 31 deg 54.426 min N 111 deg 04.047 min W GPS coordinate outside the warehouse at Twin Buttes where drums stored.	Light gray course and fine solids.	08/12/2009; 10:30	Solid	TCLP Metals, Total Metals
SP-10	Electrowinning Lead Flakes Drum 3 31 deg 54.426 min N 111 deg 04.047 min W GPS coordinate outside the warehouse at Twin Buttes where drums stored.	Dark and black metal frits.	08/12/2009; 10:36	Solid	TCLP Metals, Total Metals
SP-11	Solvent Extraction Crud 31 deg 51.924 min N 111 deg 06.081 min W Sierrita solvent extraction dump container. A large roll-off container.	Thick grayish clay mud.	08/12/2009; 11:20	Solid	TCLP Metals, Total Metals, TCLP SVOA, Total SVOA,

Table 2. Summary of TCLP Metal Results – Solid Samples

Analyte	Sample ID					TCLP Limit	Non-wastewater Universal Treatment Standards	Units	Method
	SP-06	SP-08	SP-09	SP-10	SP-11				
Aluminum	2.0 U	3.6	4.2	2.4	2.0	n/a	n/a	mg/l	1311/6010B
Antimony	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	n/a	1.15	mg/l	1311/6010B
Arsenic	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	5	5	mg/l	1311/6010B
Barium	10 U	10 U	10 U	10 U	10 U	100	21	mg/l	1311/6010B
Beryllium	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	n/a	1.22	mg/l	1311/6010B
Cadmium	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1	0.11	mg/l	1311/6010B
Calcium	52	46	140	20 U	240	n/a	n/a	mg/l	1311/6010B
Chromium	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	5	0.6	mg/l	1311/6010B
Cobalt	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	n/a	n/a	mg/l	1311/6010B
Copper	16	170	220	660	2.0 U	n/a	n/a	mg/l	1311/6010B
Iron	2.0 U	5.4	2.0 U	2.0 U	2.0 U	n/a	n/a	mg/l	1311/6010B
Lead	2.0 U	**19**	**22**	**9.0**	2.0 U	5	0.75	mg/l	1311/6010B
Magnesium	20 U	20 U	20 U	20 U	20 U	n/a	n/a	mg/l	1311/6010B
Manganese	2.0 U	25	52	2.0 U	2.0 U	n/a	n/a	mg/l	1311/6010B
Mercury	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.016	0.2	0.025	mg/l	1311/7470A
Nickel	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	n/a	11	mg/l	1311/6010B
Potassium	40 U	40 U	40 U	40 U	40 U	n/a	n/a	mg/l	1311/6010B
Selenium	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1	5.7	mg/l	1311/6010B
Silver	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	5	0.14	mg/l	1311/6010B
Thallium	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	n/a	0.2	mg/l	1311/6020
Vanadium	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	n/a	1.6	mg/l	1311/6010B
Zinc	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	n/a	4.3	mg/l	1311/6010B

U – Compound analyzed but not detected at a concentration above the reporting limit.
n/a – No applicable limit for analyte.
Bold – Exceedance of TCLP limit.
Underline – Exceedance of the nonwastewater universal treatment standard.

Table 3. Summary of Total Metal Results – Solid Samples

Analyte	Sample ID					Soil Screening Level [a]	Units	Method
	SP-06	SP-08	SP-09	SP-10	SP-11			
Aluminum	2,800	490	710	35	7,100	990,000	mg/kg	6010B
Antimony	2.5 U	400	600	640	5.0 U	410	mg/kg	6010B
Arsenic	72	56	100	91	3.1	1.6	mg/kg	6010B
Barium	27	58	60	25	86	190,000	mg/kg	6010B
Beryllium	1.0 U	1.0 U	2.0 U	2.0 U	2.0 U	58	mg/kg	6010B
Cadmium	4.2	1.7	2.0 U	2.0 U	2.0 U	800	mg/kg	6010B
Calcium	1,600	1,300	3,400	240	16,000	n/a	mg/kg	6010B
Chromium	9.5	10	9.9	5.0 U	5.0 U	1,400	mg/kg	6010B
Cobalt	68	16	50	100	5.0 U	300	mg/kg	6010B
Copper	77,000	23,000	5,300	6,500	1,700	41,000	mg/kg	6010B
Iron	160,000	2,300	3,700	280	2,900	720,000	mg/kg	6010B
Lead	710	39,000	55,000	63,000	28	800	mg/kg	6010B
Magnesium	1,800	68	100 U	100 U	1,900	n/a	mg/kg	6010B
Manganese	99	580	3,200	8,400	44	23,000	mg/kg	6010B
Mercury	0.47	0.25	0.27	0.12	3.3	24	mg/kg	7471A
Nickel	30	2.5 U	5.0 U	5.0 U	5.0 U	20,000	mg/kg	6010B
Potassium	1,800	380	450	320	470	n/a	mg/kg	6010B
Selenium	41	2.5 U	5.0 U	5.0 U	16	5,100	mg/kg	6010B
Silver	32	6.8	5.0 U	5.0 U	75	5,100	mg/kg	6010B
Sodium	500 U	200 U	200 U	200 U	560	n/a	mg/kg	6010B
Thallium	100	5.8	7.7	9.2	5.0 U	66	mg/kg	6010B
Vanadium	2.5 U	.6.6	16	26	5.0 U	5,200	mg/kg	6010B
Zinc	770	11	11	10 U	24	31,000	mg/kg	6010B

a – EPA Region III April 2009 industrial soil screening levels are used for solid samples. If an industrial soil screening level is not available for a pollutant, the risk-based concentration is used.
U – Compound analyzed but not detected at a concentration above the reporting limit.
n/a – No applicable limit for analyte.
Underline – Exceedance of soil screening level.

Table 4. Summary of TCLP Metal Results – Aqueous Samples

Analyte	Sample ID						TCLP Limit	Units	Method
	SP-01	SP-02	SP-03	SP-04	SP-05	SP-07			
Aluminum	16	16	2.0 U	3.4	16	2.0 U	n/a	mg/l	1311/6010B
Antimony	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	n/a	mg/l	1311/6010B
Arsenic	2.0 U	**9**	2.0 U	2.0 U	2.0 U	2.0 U	5	mg/l	1311/6010B
Barium	10 U	10 U	10 U	10 U	10 U	10 U	100	mg/l	1311/6010B
Beryllium	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	n/a	mg/l	1311/6010B
Cadmium	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1	mg/l	1311/6010B
Calcium	410	390	1,400	400	420	22	n/a	mg/l	1311/6010B
Chromium	**14**	**10**	2.0 U	2.0 U	**15**	2.0 U	5	mg/l	1311/6010B
Cobalt	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	n/a	mg/l	1311/6010B
Copper	440	340	2.0 U	350	440	2.0 U	n/a	mg/l	1311/6010B
Iron	780	580	2.0 U	44	860	2.5	n/a	mg/l	1311/6010B
Lead	**17**	**6.0**	2.0 U	4.2	**18**	2.0 U	5	mg/l	1311/6010B
Magnesium	43	45	20 U	20 U	44	20 U	n/a	mg/l	1311/6010B
Manganese	3.4	2.4	2.0 U	2.8	3.6	2.0 U	n/a	mg/l	1311/6010B
Mercury	0.0020 U	0.0021	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.2	mg/l	1311/7470A
Nickel	7.4	5.8	2.0 U	6.4	7.6	2.0 U	n/a	mg/l	1311/6010B
Potassium	40 U	40 U	40 U	40 U	40 U	40 U	n/a	mg/l	1311/6010B
Selenium	1.0 U	**3.3**	1.0 U	1.0 U	1.0 U	1.0 U	1	mg/l	1311/6010B
Silver	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	5	mg/l	1311/6010B
Thallium	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	n/a	mg/l	1311/6020
Vanadium	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	n/a	mg/l	1311/6010B
Zinc	10 U	10 U	10 U	10 U	10 U	10 U	n/a	mg/l	1311/6010B

U – Compound analyzed but not detected at a concentration above the reporting limit.
n/a – No applicable limit for analyte.
Bold – Exceedance of TCLP limit.

Table 5. Summary of Total Metal Results – Aqueous Samples

Analyte	Sample ID						Wastewater Universal Treatment Standard	Units	Method
	SP-01	SP-02	SP-03	SP-04	SP-05	SP-07			
Aluminum	15	12	24	2,000	17	0.62	n/a	mg/l	6010B
Antimony	0.075	0.050 U	0.50 U	25 U	0.19	0.025 U	1.9	mg/l	6010B
Arsenic	0.70	8.7	0.17	1.5	1.0	0.062	1.4	mg/l	6010B
Barium	0.10	0.019	0.19	0.10 U	0.090	0.032	1.2	mg/l	6010B
Beryllium	0.0025	0.0014	0.010 U	0.010 U	0.0024	0.0010 U	0.82	mg/l	6010B
Cadmium	0.060	0.041	0.030 U	0.073	0.063	0.0030 U	0.69	mg/l	6010B
Calcium	440	370	11,000	90	390	34	n/a	mg/l	6010B
Chromium	13	9.6	0.20 U	2,200	16	0.010 U	2.77	mg/l	6010B
Cobalt	0.28	0.18	0.10 U	0.31	0.27	0.010 U	n/a	mg/l	6010B
Copper	520	330	0.35	62,000	510	33	n/a	mg/l	6010B
Iron	840	510	12	1,200	840	34	n/a	mg/l	6010B
Lead	18	5.8	0.10 U	25	18	0.13	0.69	mg/l	6010B
Magnesium	45	39	88	26	42	2.3	n/a	mg/l	6010B
Manganese	3.4	2.1	0.52	4.7	3.3	0.034	n/a	mg/l	6010B
Mercury	0.0074	0.0061	0.0005	2.3	0.0081	0.0003	0.150	mg/l	7470A
Nickel	6.8	5.2	0.20 U	1,100	8.4	0.010 U	3.98	mg/l	6010B
Potassium	19	21	40 U	2,000 U	19	4.0 U	n/a	mg/l	6010B
Selenium	0.050 U	3.4	0.72	25 U	0.10	0.025 U	0.82	mg/l	6010B
Silver	0.52	0.26	0.050 U	1.3	0.48	0.026	0.43	mg/l	6010B
Sodium	140	1,500	150	2,000 U	180	360	n/a	mg/l	6010B
Thallium	0.10 U	0.50 U	1.0 U	50 U	0.10 U	0.10 U	1.4	mg/l	6010B
Vanadium	0.088	0.064	0.10 U	0.10 U	0.10	0.010 U	4.3	mg/l	6010B
Zinc	7.7	5.8	1.0 U	1,300	10	0.56	2.61	mg/l	6010B

U – Compound analyzed but not detected at a concentration above the reporting limit.
n/a – No applicable limit for analyte.
Underline – Exceedance of the wastewater universal treatment standard.

Table 6. Summary of TCLP Semivolatile Organic Compound Results – Solid Samples

Analyte	Solid Samples				
	SP-06	SP-11	TCLP Limit	Units	Method
1,4-Dichlorobenzene	0.10 U	2.5 U	7.5	mg/l	1311/8270C
2,4-Dinitrotoluene	0.10 U	2.5 U	0.13	mg/l	1311/8270C
Hexachlorobenzene	0.10 U	2.5 U	0.13	mg/l	1311/8270C
Hexachlorobutadiene	0.10 U	2.5 U	0.5	mg/l	1311/8270C
Hexachloroethane	0.10 U	2.5 U	3.0	mg/l	1311/8270C
2-Methylphenol (o-Cresol)	0.10 U	2.5 U	200	mg/l	1311/8270C
4-Methylphenol (p-Cresol)	0.20 U	5.0 U	200	mg/l	1311/8270C
Nitrobenzene	0.10 U	2.5 U	2.0	mg/l	1311/8270C
Pentachlorophenol	0.10 U	2.5 U	100	mg/l	1311/8270C
Pyridine	0.20 U	5.0 U	5	mg/l	1311/8270C
2,4,5-Trichlorophenol	0.10 U	2.5 U	400	mg/l	1311/8270C
2,4,6-Trichlorophenol	0.10 U	2.5 U	2	mg/l	1311/8270C

U – Compound analyzed but not detected at a concentration above the reporting limit.

Table 7. Summary of Total Semivolatile Organic Compound Results – Solid Samples

Analyte	Solid Samples					
	SP-06	SP-11	Soil Screening Level [a]	Non-wastewater Universal Treatment Standards	Units	Method
Acenaphthene	2.0 U	150 U	33,000	3.40	mg /kg	8270C
Acenaphthylene	2.0 U	150 U	n/a	3.40	mg /kg	8270C
Anthracene	2.0 U	150 U	170,000	3.40	mg /kg	8270C
Azobenzene	2.0 U	150 U	22.00	n/a	mg /kg	8270C
Benzo(a)anthracene	2.0 U	150 U	2.10	3.40	mg /kg	8270C
Benzo(a)pyrene	2.0 U	150 U	0.21	3.40	mg /kg	8270C
Benzo(b)fluoranthene	2.0 U	150 U	2.10	6.80	mg /kg	8270C
Benzo(ghi)perylene	2.0 U	150 U	n/a	1.80	mg /kg	8270C
Benzo(k)fluoranthene	2.0 U	150 U	21.00	6.80	mg /kg	8270C
Benzoic acid	30 U	2,300 U	2,500,000	n/a	mg /kg	8270C
Benzyl alcohol	2.0 U	150 U	310,000	n/a	mg /kg	8270C
bis(2-Chloroethoxy)methane	2.0 U	150 U	1,800	7.20	mg /kg	8270C
bis(2-Chloroethyl)ether	2.0 U	150 U	0.90	6.00	mg /kg	8270C
bis(2-Chloroisopropyl)ether	2.0 U	150 U	n/a	n/a	mg /kg	8270C
bis(2-Ethylhexyl)phthalate	2.0 U	150 U	120.00	n/a	mg /kg	8270C
4-Bromophenyl phenyl ether	2.0 U	150 U	n/a	15.00	mg /kg	8270C
Butyl benzylphthalate	2.0 U	150 U	910.00	28.00	mg /kg	8270C
4-Chloroaniline	5.9 U	470 U	8.60	16.00	mg /kg	8270C
4-Chloro-3-methylphenol (p-Chloro-m-cresol)	2.0 U	150 U	n/a	14.00	mg /kg	8270C
2-Chloronaphthalene	2.0 U	150 U	82,000	5.60	mg /kg	8270C
2-Chlorophenol	2.0 U	150 U	5,100	5.00	mg /kg	8270C
4-Chlorophenyl phenyl ether	2.0 U	150 U	n/a	n/a	mg /kg	8270C
Chrysene	2.0 U	150 U	210.00	3.40	mg /kg	8270C
Dibenz(a,h)anthracene	2.0 U	150 U	0.21	8.20	mg /kg	8270C
Dibenzofuran	2.0 U	150 U	n/a	n/a	mg /kg	8270C
1,2-Dichlorobenzene	2.0 U	150 U	10,000	6.00	mg /kg	8270C

Table 7. Summary of Total Semivolatile Organic Compound Results – Solid Samples

Analyte	Solid Samples					
	SP-06	SP-11	Soil Screening Level [a]	Non-wastewater Universal Treatment Standards	Units	Method
1,3-Dichlorobenzene	2.0 U	150 U	n/a	6.00	mg /kg	8270C
1,4-Dichlorobenzene	2.0 U	150 U	13.00	6.00	mg /kg	8270C
3,3'-Dichlorobenzidine	10 U	790 U	3.80	n/a	mg /kg	8270C
2,4-Dichlorophenol	3.0 U	230 U	1,800	14.00	mg /kg	8270C
Diethylphthalate	2.0 U	150 U	490,000	160.00	mg /kg	8270C
2,4-Dimethylphenol	2.0 U	150 U	12,000	14.00	mg /kg	8270C
Dimethylphthalate	2.0 U	150 U	n/a	28.00	mg /kg	8270C
Di-n-butylphthalate	2.0 U	150 U	62,000	28.00	mg /kg	8270C
4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	12 U	930 U	62.00	160.00	mg /kg	8270C
2,4-Dinitrophenol	12 U	930 U	1,200	160.00	mg /kg	8270C
2,4-Dinitrotoluene	2.0 U	150 U	5.50	140.00	mg /kg	8270C
2,6-Dinitrotoluene	2.0 U	150 U	620.00	28.00	mg /kg	8270C
Di-n-octylphthalate	2.0 U	150 U	n/a	28.00	mg /kg	8270C
Fluoranthene	2.0 U	150 U	22,000	3.40	mg /kg	8270C
Fluorene	2.0 U	150 U	22,000	3.40	mg /kg	8270C
Hexachlorobenzene	2.0 U	150 U	1.10	10.00	mg /kg	8270C
Hexachlorobutadiene	2.0 U	150 U	22.00	5.60	mg /kg	8270C
Hexachlorocyclopentadiene	12.0 U	930 U	3,700	2.40	mg /kg	8270C
Hexachloroethane	2.0 U	150 U	120.00	30.00	mg /kg	8270C
Indeno(1,2,3-cd)pyrene	2.0 U	150 U	2.10	3.40	mg /kg	8270C
Isophorone	2.0 U	150 U	1,800	n/a	mg /kg	8270C
2-Methylnaphthalene	2.0 U	150 U	2,100	n/a	mg /kg	8270C
2-Methylphenol (o-Cresol)	2.0 U	150 U	31,000	5.60	mg /kg	8270C
4-Methylphenol (p-Cresol)	3.0 U	230 U	3,100	5.60	mg /kg	8270C
Naphthalene	2.0 U	150 U	20.00	5.60	mg /kg	8270C
Nitrobenzene	2.0 U	150 U	22.00	14.00	mg /kg	8270C

Table 7. Summary of Total Semivolatile Organic Compound Results – Solid Samples

Analyte	Solid Samples					
	SP-06	SP-11	Soil Screening Level [a]	Non-wastewater Universal Treatment Standards	Units	Method
2-Nitrophenol	2.0 U	150 U	n/a	13.00	mg /kg	8270C
4-Nitrophenol	12.0 U	930 U	n/a	29.00	mg /kg	8270C
N-Nitrosodi-n-propylamine (Di-n-propylnitrosamine)	2.0 U	150 U	0.25	14.00	mg /kg	8270C
N-Nitrosodiphenylamine (Diphenylnitrosamine)	2.0 U	150 U	350.00	13.00	mg /kg	8270C
Pentachlorophenol	4.0 U	310 U	9.0	7.40	mg /kg	8270C
Phenanthrene	2.0 U	150 U	n/a	5.60	mg /kg	8270C
Phenol	2.0 U	150 U	180,000	6.20	mg /kg	8270C
Pyrene	2.0 U	150 U	17,000	8.20	mg /kg	8270C
1,2,4-Trichlorobenzene	3.0 U	230 U	400	19.00	mg /kg	8270C
2,4,6-Trichlorophenol	3.0 U	230 U	160	7.40	mg /kg	8270C

U – Compound analyzed but not detected at a concentration above the reporting limit.
n/a – No applicable limit for analyte.
a – EPA Region III April 2009 industrial soil screening levels are used for solid samples. If an industrial soil screening level is not available for a pollutant, the risk-based concentration is used.

Table 8. Summary of TCLP Semivolatile Organic Compound Results – Liquid Samples

Analyte	Liquid Samples		TCLP Limit	Units	Method
	SP-05	SP-07			
1,4-Dichlorobenzene	0.25 U	0.05 U	7.5	mg/l	1311/8270C
2,4-Dinitrotoluene	0.25 U	0.05 U	0.13	mg/l	1311/8270C
Hexachlorobenzene	0.25 U	0.05 U	0.13	mg/l	1311/8270C
Hexachlorobutadiene	0.25 U	0.05 U	0.5	mg/l	1311/8270C
Hexachloroethane	0.25 U	0.05 U	3.0	mg/l	1311/8270C
2-Methylphenol (o-Cresol)	0.25 U	0.05 U	200	mg/l	1311/8270C
4-Methylphenol (p-Cresol)	0.50 U	0.10 U	200	mg/l	1311/8270C
Nitrobenzene	0.25 U	0.05 U	2.0	mg/l	1311/8270C
Pentachlorophenol	0.25 U	0.05 U	100	mg/l	1311/8270C
Pyridine	0.50 U	0.10 U	5	mg/l	1311/8270C
2,4,5-Trichlorophenol	0.25 U	0.05 U	400	mg/l	1311/8270C
2,4,6-Trichlorophenol	0.25 U	0.05 U	2	mg/l	1311/8270C

U – Compound analyzed but not detected at a concentration above the reporting limit.

Table 9. Summary of Total Semivolatile Organic Compound Results – Liquid Samples

Analyte	Liquid Samples				
	SP-05	SP-07	Wastewater Universal Treatment Standards	Units	Method
Acenaphthene	52 U	20 U	59	µg /l	8270C
Acenaphthylene	52 U	20 U	59	µg /l	8270C
Anthracene	52 U	20 U	59	µg /l	8270C
Azobenzene	52 U	20 U	n/a	µg /l	8270C
Benzo(a)anthracene	52 U	20 U	59	µg /l	8270C
Benzo(a)pyrene	52 U	20 U	61	µg /l	8270C
Benzo(b)fluoranthene	52 U	20 U	110	µg /l	8270C
Benzo(ghi)perylene	52 U	20 U	5.5	µg /l	8270C
Benzo(k)fluoranthene	52 U	20 U	110	µg /l	8270C
Benzoic acid	260 U	100 U	n/a	µg /l	8270C
Benzyl alcohol	52 U	20 U	n/a	µg /l	8270C
bis(2-Chloroethoxy)methane	52 U	20 U	36	µg /l	8270C
bis(2-Chloroethyl)ether	52 U	20 U	33	µg /l	8270C
bis(2-Chloroisopropyl)ether	52 U	20 U	55	µg /l	8270C
bis(2-Ethylhexyl)phthalate	52 U	20 U	n/a	µg /l	8270C
4-Bromophenyl phenyl ether	52 U	20 U	55	µg /l	8270C
Butyl benzylphthalate	52 U	20 U	17	µg /l	8270C
4-Chloroaniline	100 U	40 U	460	µg /l	8270C
4-Chloro-3-methylphenol (p-Chloro-m-cresol)	52 U	20 U	18	µg /l	8270C
2-Chloronaphthalene	52 U	20 U	55	µg /l	8270C
2-Chlorophenol	52 U	20 U	44	µg /l	8270C
4-Chlorophenyl phenyl ether	52 U	20 U	n/a	µg /l	8270C
Chrysene	52 U	20 U	59	µg /l	8270C
Dibenz(a,h)anthracene	52 U	20 U	55	µg /l	8270C
Dibenzofuran	52 U	20 U	n/a	µg /l	8270C
1,2-Dichlorobenzene	52 U	20 U	88	µg /l	8270C

Table 9. Summary of Total Semivolatile Organic Compound Results – Liquid Samples

Analyte	Liquid Samples				
	SP-05	SP-07	Wastewater Universal Treatment Standards	Units	Method
1,3-Dichlorobenzene	52 U	20 U	36	µg /l	8270C
1,4-Dichlorobenzene	52 U	20 U	90	µg /l	8270C
3,3'-Dichlorobenzidine	52 U	20 U	n/a	µg /l	8270C
2,4-Dichlorophenol	52 U	20 U	44	µg /l	8270C
Diethylphthalate	52 U	20 U	200	µg /l	8270C
2,4-Dimethylphenol	52 U	20 U	36	µg /l	8270C
Dimethylphthalate	52 U	20 U	47	µg /l	8270C
Di-n-butylphthalate	52 U	20 U	57	µg /l	8270C
4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	52 U	20 U	280	µg /l	8270C
2,4-Dinitrophenol	100 U	40 U	120	µg /l	8270C
2,4-Dinitrotoluene	52 U	20 U	320	µg /l	8270C
2,6-Dinitrotoluene	52 U	20 U	550	µg /l	8270C
Di-n-octylphthalate	52 U	20 U	17	µg /l	8270C
Fluoranthene	52 U	20 U	68	µg /l	8270C
Fluorene	52 U	20 U	59	µg /l	8270C
Hexachlorobenzene	52 U	20 U	55	µg /l	8270C
Hexachlorobutadiene	52 U	20 U	55	µg /l	8270C
Hexachlorocyclopentadiene	52 U	20 U	57	µg /l	8270C
Hexachloroethane	52 U	20 U	55	µg /l	8270C
Indeno(1,2,3-cd)pyrene	52 U	20 U	5.5	µg /l	8270C
Isophorone	52 U	20 U	n/a	µg /l	8270C
2-Methylnaphthalene	69	20 U	n/a	µg /l	8270C
2-Methylphenol (o-Cresol)	52 U	20 U	110	µg /l	8270C
4-Methylphenol (p-Cresol)	52 U	20 U	770	µg /l	8270C
Naphthalene	52 U	20 U	59	µg /l	8270C
Nitrobenzene	52 U	20 U	68	µg /l	8270C

Table 9. Summary of Total Semivolatile Organic Compound Results – Liquid Samples

Analyte	Liquid Samples				
	SP-05	SP-07	Wastewater Universal Treatment Standards	Units	Method
2-Nitrophenol	52 U	20 U	28	µg /l	8270C
4-Nitrophenol	52 U	20 U	120	µg /l	8270C
N-Nitrosodi-n-propylamine (Di-n-propylnitrosamine)	52 U	20 U	400	µg /l	8270C
N-Nitrosodiphenylamine (Diphenylnitrosamine)	52 U	20 U	920	µg /l	8270C
Pentachlorophenol	52 U	20 U	89	µg /l	8270C
Phenanthrene	52 U	20 U	59	µg /l	8270C
Phenol	52 U	20 U	39	µg /l	8270C
Pyrene	52 U	20 U	67	µg /l	8270C
1,2,4-Trichlorobenzene	52 U	20 U	55	µg /l	8270C
2,4,6-Trichlorophenol	52 U	20 U	35	µg /l	8270C

U – Compound analyzed but not detected at a concentration above the reporting limit.
n/a – No applicable limit for analyte.

Table 10. Summary of Polychlorinated Biphenyls Results – Solid Samples

Analyte	Sample ID	Non-wastewater Universal Treatment Standards [a]	Soil Screening Level [b]	Units	Method
	SP-06				
PCB 1_2-MoCB	0.0555	10,000	410	µg /kg	1668A
PCB 2_3-MoCB	0.0575	10,000	410	µg /kg	1668A
PCB 3_4-MoCB	0.117	10,000	410	µg /kg	1668A
PCB 4_2,2'-DiCB	ND U	10,000	410	µg /kg	1668A
PCB 5_2,3-DiCB	ND U	10,000	410	µg /kg	1668A
PCB 6 _2,3'-DiCB	ND U	10,000	410	µg /kg	1668A
PCB 7_2,4-DiCB	ND U	10,000	410	µg /kg	1668A
PCB 8_2,4'-DiCB	0.143	10,000	410	µg /kg	1668A
PCB 9_2,4'-DiCB1	ND U	10,000	410	µg /kg	1668A
PCB 10_2,5-DiCB	ND U	10,000	410	µg /kg	1668A
PCB 11_2,6-DiCB	235 K	10,000	410	µg /kg	1668A
PCBs 12_3,4-DiCB + 13_3,4'-DiCB	ND U	10,000	410	µg /kg	1668A
PCB 14_3,5-DiCB	ND U	10,000	410	µg /kg	1668A
PCB 15_4,4'-DiCB	0.199	10,000	410	µg /kg	1668A
PCB 16_2,2',3-TrCB	0.328	10,000	410	µg /kg	1668A
PCB 17_2,2',4-TrCB	0.218 B	10,000	410	µg /kg	1668A
PCB 18_2,2',5-TrCB + 30_2,2',5-TrCB	0.510 B	10,000	410	µg /kg	1668A
PCB 19_2,2',6-TrCB	0.0497	10,000	410	µg /kg	1668A
PCBs 20_2,3,3'-TrCB + 28 2,4,4'-TrCB	1.630 B	10,000	410	µg /kg	1668A
PCBs 21_2,3,4-TrCB + 33_2',3,4-TrCB	0.876 B	10,000	410	µg /kg	1668A
PCB 22_2,3,4'-TrCB	0.633 B	10,000	410	µg /kg	1668A

Table 10. Summary of Polychlorinated Biphenyls Results – Solid Samples

Analyte	Sample ID	Non-wastewater Universal Treatment Standards [a]	Soil Screening Level [b]	Units	Method
	SP-06				
PCB 23_2,3,5-TrCB	ND U	10,000	410	µg /kg	1668A
PCB 24_2,3,6-TrCB	ND U	10,000	410	µg /kg	1668A
PCB 25_2,3',4-TrCB	0.0872	10,000	410	µg /kg	1668A
PCBs 26_2,3',5-TrCB + 29_2,4,5-TrCB	0.215 B	10,000	410	µg /kg	1668A
PCB 27_2,3',6-TrCB	0.0292 JK	10,000	410	µg /kg	1668A
PCB 31_2,4',5-TrCB	2.050 B	10,000	410	µg /kg	1668A
PCB 32_2,4',6-TrCB	0.169 B	10,000	410	µg /kg	1668A
PCB 34_2',3,5-TrCB	ND U	10,000	410	µg /kg	1668A
PCB 35_3,3',4-TrCB	0.0295 JK	10,000	410	µg /kg	1668A
PCB 36_3,3',5-TrCB	ND U	10,000	410	µg /kg	1668A
PCB 37_3,4,4'-TrCB	0.653 B	10,000	410	µg /kg	1668A
PCB 38_3,4,5-TrCB	ND U	10,000	410	µg /kg	1668A
PCB 39_3,4',5-TrCB	ND U	10,000	410	µg /kg	1668A
PCBs 41_2,2',3,4-TeCB + 71_2,3',4',6-TeCB + 40_2,2',3,3'-TeCB	3.350 B	10,000	410	µg /kg	1668A
PCB 42_2,2',3,4'-TeCB	1.690 B	10,000	410	µg /kg	1668A
PCBs 43_2,2',3,5-TeCB + 73_2,3',5',6-TeCB	ND U	10,000	410	µg /kg	1668A
PCBs 44 2,2',3,5'-TeCB + 47_2,2',3,4'-TeCB + 65_2,3,5,6-TeCB	18.000 BE	10,000	410	µg /kg	1668A
PCBs 45_2,2',3,6-TeCB + 51_2,2',4,6'-TeCB	0.419	10,000	410	µg /kg	1668A
PCB 46_2,2',3,6'-TeCB	116 K	10,000	410	µg /kg	1668A
PCB 48_2,2',4,5-TeCB	0.898	10,000	410	µg /kg	1668A

Table 10. Summary of Polychlorinated Biphenyls Results – Solid Samples

Analyte	Sample ID				
	SP-06	Non-wastewater Universal Treatment Standards [a]	Soil Screening Level [b]	Units	Method
PCBs 49_ 2,2',4,5'-TeCB + 69_2,3',4,6-TeCB	8.530 BE	10,000	410	µg /kg	1668A
PCBs 50_2,2',4,6-TeCB + 53_2,2',5,6'-TeCB	0.786	10,000	410	µg /kg	1668A
PCB 52_2,2',5,5'-TeCB	41.000 BE	10,000	410	µg /kg	1668A
PCB 54_2,2',6,6'-TeCB	ND U	10,000	410	µg /kg	1668A
PCB 55_2,3,3',4'-TeCB	0.0397 J	10,000	410	µg /kg	1668A
PCB 56_2,3,3',4'-TeCB	6.990 B	10,000	410	µg /kg	1668A
PCB 57_2,3,3',5-TeCB	ND U	10,000	410	µg /kg	1668A
PCB 58_2,3,3',5'-TeCB	2.210	10,000	410	µg /kg	1668A
PCBs 59_2,3,3',6-TeCB + 62_2,3,4,6-TeCB + 75_2,4,4',6-TeCB	0.236	10,000	410	µg /kg	1668A
PCB 60_2,3,4,4'-TeCB	3.250 B	10,000	410	µg /kg	1668A
PCBs 61_2,3,4,5-TeCB + 70_2,3',4',5-TeCB + 74_2,4,4',5-TeCB + 76_2',3,4',5-TeCB	48.900 BE	10,000	410	µg /kg	1668A
PCB 63_2,3,4',5-TeCB	0.365	10,000	410	µg /kg	1668A
PCB 64_2,3,4',6-TeCB	5.570 B	10,000	410	µg /kg	1668A
PCB 66_2,3',4,4'-TeCB	11.900 BE	10,000	410	µg /kg	1668A
PCB 67_2,3',4,5-TeCB	ND U	10,000	410	µg /kg	1668A
PCB 68_2,3',4,5'-TeCB	ND U	10,000	410	µg /kg	1668A
PCB 72_2,3',5,5'-TeCB	ND U	10,000	410	µg /kg	1668A
PCB 77 3,3',4,4'-TeCB	0.694 B	10,000	410	µg /kg	1668A
PCB 78_3,3',4,5-TeCB	ND U	10,000	410	µg /kg	1668A
PCB 79_3,3',4,5'-TeCB	0.620 K	10,000	410	µg /kg	1668A

Table 10. Summary of Polychlorinated Biphenyls Results – Solid Samples

Analyte	Sample ID	Non-wastewater Universal Treatment Standards [a]	Soil Screening Level [b]	Units	Method
	SP-06				
PCB 80_3,3',5,5'-TeCB	0.367	10,000	410	µg /kg	1668A
PCB 81_3,4,4',5-TeCB2	0.0313 JK	10,000	410	µg /kg	1668A
PCB 82_2,2',3,3',4-PeCB	12.100 BE	10,000	410	µg /kg	1668A
PCBs 83_2,2',3,3',5-PeCB + 99_2,2',4,4',5-PeCB	45.400 BE	10,000	410	µg /kg	1668A
PCB 84_2,2',3,3',6-PeCB	20.300 BE	10,000	410	µg /kg	1668A
PCBs 85_2,2',3,4,4'-PeCB + 116_2,3,4,5,6-PeCB	13.300 BE	10,000	410	µg /kg	1668A
PCBs 86_2,2',3,4,5-PeCB + 87_2,2',3,4,5'-PeCB + 97_2,2',3',4,5-PeCB + 109_2,3,3',4,6-PeCB + 119_2,3',4,4',6-PeCB + 125_2',3,4,5,6'-PeCB	ND U	10,000	410	µg /kg	1668A
PCBs 88_2,2',3,4,6-PeCB + 91_2,2',3,4',6-PeCB	8.200 BE	10,000	410	µg /kg	1668A
PCB 89_2,2',3,4,6'-PeCB	ND U	10,000	410	µg /kg	1668A
PCBs 90 2,2',3,4',5-PeCB + 101_2,2',4,5,5'-PeCB + 113_2,3,3',5',6-PeCB	96.300 BE	10,000	410	µg /kg	1668A
PCB 92_2,2',3,5,5'-PeCB	15.900 BE	10,000	410	µg /kg	1668A
PCBs 93_2,2',3,5,6-PeCB + 100_2,2',4,4',6-PeCB	0.219	10,000	410	µg /kg	1668A
PCB 94_2,2',3,5,6'-PeCB	0.167	10,000	410	µg /kg	1668A
PCB 95_2,2',3,5',6-PeCB	52.400 BE	10,000	410	µg /kg	1668A
PCB 96_2,2',3,6,6'-PeCB	0.229	10,000	410	µg /kg	1668A
PCBs 98_2,2',3',4,6-PeCB + 102_2,2',4,5,6'-PeCB	1.470	10,000	410	µg /kg	1668A

Table 10. Summary of Polychlorinated Biphenyls Results – Solid Samples

Analyte	Sample ID	Non-wastewater Universal Treatment Standards [a]	Soil Screening Level [b]	Units	Method
	SP-06				
PCB 103_2,2',4,5,6'-PeCB	0.209	10,000	410	µg /kg	1668A
PCB 104_2,2',4,6,6'-PeCB	ND U	10,000	410	µg /kg	1668A
PCB 105_2,3,3'4,4'-PeCB	46.700 BE	10,000	410	µg /kg	1668A
PCB 106_2,3,3',4,5-PeCB	ND U	10,000	410	µg /kg	1668A
PCB 107_2,3,3',4',5-PeCB	8.170 BE	10,000	410	µg /kg	1668A
PCBs 108_2,3,3',4,5'-PeCB + 124_2',3,4,5,5'-PeCB	ND U	10,000	410	µg /kg	1668A
PCBs 110_2,3,3',4',6-PeCB + 115_2,3,4,4',6-PeCB	118.000 BE	10,000	410	µg /kg	1668A
PCB 111_2,3,3',5,5'-PeCB	ND U	10,000	410	µg /kg	1668A
PCB 112_2,3,3',5,6-PeCB	ND U	10,000	410	µg /kg	1668A
PCB 114_2,3,4,4',5-PeCB	2.660	10,000	410	µg /kg	1668A
PCB 117_2,3,4',5,6-PeCB	1.290 K	10,000	410	µg /kg	1668A
PCB 118_2,3',4,4',5-PeCB	94.600 BE	10,000	410	µg /kg	1668A
PCB 120_2,3',4,5,5'-PeCB	ND U	10,000	410	µg /kg	1668A
PCB 121_2,3',4,5,6-PeCB	ND U	10,000	410	µg /kg	1668A
PCB 122_2',3,3',4,5-PeCB	1.340	10,000	410	µg /kg	1668A
PCB 123_2',3,4,4',5-PeCB	1.700	10,000	410	µg /kg	1668A
PCB 126_3,3',4,4',5-PeCB	ND U	10,000	410	µg /kg	1668A
PCB 127_3,3',4,5,5'-PeCB	ND U	10,000	410	µg /kg	1668A
PCBs 128_2,2',3,3',4,4'-HxCB + 166_2,3,4,4',5,6-HxCB	23.600 BE	10,000	410	µg /kg	1668A
PCBs 129_2,2',3,3',4,5-HxCB + 138_2,2',3,4,4',5'-HxCB + 163_2,3,3',4',5,6-HxCB	125.000 BE	10,000	410	µg /kg	1668A
PCB 130_2,2',3,3',4,5'-HxCB	8.700 BE	10,000	410	µg /kg	1668A

Table 10. Summary of Polychlorinated Biphenyls Results – Solid Samples

Analyte	Sample ID	Non-wastewater Universal Treatment Standards [a]	Soil Screening Level [b]	Units	Method
	SP-06				
PCB 131_2,2',3,3',4,6-HxCB	2.070	10,000	410	µg/kg	1668A
PCB 132_2,2',3,3',4,6'-HxCB	42.700 BE	10,000	410	µg/kg	1668A
PCB 133_2,2',3,3',5,5'-HxCB	1.150	10,000	410	µg/kg	1668A
PCB 134_2,2',3,3',5,6-HxCB	6.690	10,000	410	µg/kg	1668A
PCBs 135_2,2',3,3',5,6'-HxCB + 151_2,2',3,5,5',6-HxCB	17.700 BE	10,000	410	µg/kg	1668A
PCB 136_2,2',3,3',6,6'-HxCB	8.050 B	10,000	410	µg/kg	1668A
PCB 137_2,2',3,4,4',5-HxCB	9.150 BE	10,000	410	µg/kg	1668A
PCBs 139_2,2',3,4,4',6-HxCB + 140_2,2',3,4,4',6'-HxCB	2.330	10,000	410	µg/kg	1668A
PCB 141_2,2',3,4,5,5'-HxCB	18.600 BE	10,000	410	µg/kg	1668A
PCB 142_2,2',3,4,5,6-HxCB	ND U	10,000	410	µg/kg	1668A
PCB 143_2,2',3,4,5,6'-HxCB	ND U	10,000	410	µg/kg	1668A
PCB 144_2,2',3,4,5',6-HxCB	3.300 B	10,000	410	µg/kg	1668A
PCB 145_2,2',3,4,6,6'-HxCB	ND U	10,000	410	µg/kg	1668A
PCB 146_2,2',3,4',5,5'-HxCB	11.400 BE	10,000	410	µg/kg	1668A
PCBs 147_2,2',3,4',5,6-HxCB + 149_2,2',3,4',5',6-HxCB	62.000 BE	10,000	410	µg/kg	1668A
PCB 148_2,2',3,4',5,6'-HxCB	ND U	10,000	410	µg/kg	1668A
PCB 150_2,2',3,4',6,6'-HxCB	0.0497 JK	10,000	410	µg/kg	1668A
PCB 152_2,2',3,5,6,6'-HxCB	0.0635 J	10,000	410	µg/kg	1668A
PCBs 153 2,2',4,4',5,5'-HxCB + 168_2,3',4,4',5',6-HxCB	70.300 BE	10,000	410	µg/kg	1668A
PCB 154_2,2',4,4',5',6-HxCB	0.526	10,000	410	µg/kg	1668A
PCB 155_2,2',4,4',6,6'-HxCB	ND U	10,000	410	µg/kg	1668A

Table 10. Summary of Polychlorinated Biphenyls Results – Solid Samples

Analyte	Sample ID	Non-wastewater Universal Treatment Standards [a]	Soil Screening Level [b]	Units	Method
	SP-06				
PCBs 156_2,3,3',4,4',5-HxCB + 157_2,3,3',4,4',5'-HxCB2	20.600 BE	10,000	410	µg /kg	1668A
PCB 158_2,3,3',4,4',6-HxCB	14.000 BE	10,000	410	µg /kg	1668A
PCB 159_2,3,3',4,5,5'-HxCB	0.144 JK	10,000	410	µg /kg	1668A
PCB 160_2,3,3',4,5,6-HxCB	ND U	10,000	410	µg /kg	1668A
PCB 161_2,3,3',4,5',6-HxCB	ND U	10,000	410	µg /kg	1668A
PCB 162_2,3,3',4',5,5'-HxCB	0.484	10,000	410	µg /kg	1668A
PCB 164_2,3,3',4',5',6-HxCB	7.640 B	10,000	410	µg /kg	1668A
PCB 165_2,3,3',5,5',6-HxCB	ND U	10,000	410	µg /kg	1668A
PCB 167_2,3,4,4',5,5'-HxCB2	4.780 B	10,000	410	µg /kg	1668A
PCB 169_3,3',4,4',5,5'-HxCB	ND U	10,000	410	µg /kg	1668A
PCB 170_2,2',3,3',4,4',5-HpCB	11.700 BE	10,000	410	µg /kg	1668A
PCBs 171_2,2',3,3',4,4',6-HpCB + 173_2,2',3,3',4,5,6-HpCB	3.770 B	10,000	410	µg /kg	1668A
PCB 172_2,2',3,3',4,5,5'-HpCB	1.590 B	10,000	410	µg /kg	1668A
PCB 174_2,2',3,3',4,5,6'-HpCB	7.200 B	10,000	410	µg /kg	1668A
PCB 175_2,2',3,3',4,5',6-HpCB	0.345	10,000	410	µg /kg	1668A
PCB 176_2,2',3,3',4,6,6'-HpCB	0.889	10,000	410	µg /kg	1668A
PCB 177_2,2',3,3',4',5,6-HpCB	4.390 B	10,000	410	µg /kg	1668A
PCB 178_2,2',3,3',5,5',6-HpCB	0.938 B	10,000	410	µg /kg	1668A
PCB 179_2,2',3,3',5,6,6'-HpCB	1.840 B	10,000	410	µg /kg	1668A
PCBs 180_2,2',3,4,4',5,5'-HpCB + 193_2,3,3',4',5,5',6-HpCB	14.500 BE	10,000	410	µg /kg	1668A
PCB 181_2,2',3,4,4',5,6-HpCB	0.317	10,000	410	µg /kg	1668A
PCB 182_2,2',3,4,4',5,6'-HpCB	0.0783 J	10,000	410	µg /kg	1668A
PCB 183_2,2',3,4,4',5',6-HpCB	4.660	10,000	410	µg /kg	1668A

Table 10. Summary of Polychlorinated Biphenyls Results – Solid Samples

Analyte	Sample ID	Non-wastewater Universal Treatment Standards [a]	Soil Screening Level [b]	Units	Method
	SP-06				
PCB 184_2,2',3,4,4',6,6'-HpCB	ND U	10,000	410	µg/kg	1668A
PCB 185_2,2',3,4,5,5',6-HpCB	ND U	10,000	410	µg/kg	1668A
PCB 186_2,2',3,4,5,6,6'-HpCB	ND U	10,000	410	µg/kg	1668A
PCB 187_2,2',3,4,5,5',6-HpCB	4.990 B	10,000	410	µg/kg	1668A
PCB 188_2,2',3,4',5,6,6'-HpCB	ND U	10,000	410	µg/kg	1668A
PCB 189_2,3,3',4,4',5,5'-HpCB	0.513	10,000	410	µg/kg	1668A
PCB 190_2,3,3',4,4',5,6-HpCB	1.890 B	10,000	410	µg/kg	1668A
PCB 191_2,3,3',4,4',5',6-HpCB	0.421	10,000	410	µg/kg	1668A
PCB 192_2,3,3',4,5,5',6-HpCB	ND U	10,000	410	µg/kg	1668A
PCB 194_2,2',3,3',4,4',5,5'-OcCB	0.618 B	10,000	410	µg/kg	1668A
PCB 195_2,2',3,3',4,4',5,6-OcCB	0.321	10,000	410	µg/kg	1668A
PCB 196_2,2',3,3',4,4',5,6'-OcCB	0.400 B	10,000	410	µg/kg	1668A
PCB 197_2,2',3,3',4,4',6,6'-OcCB	0.0346 J	10,000	410	µg/kg	1668A
PCBs 198_2,2',3,3',4,5,5',6-OcCB + 199_2,2',3,3',4,5,5',6'-OcCB	0.709 B	10,000	410	µg/kg	1668A
PCB 200_2,2',3,3',4,5,6,6'-OcCB	0.105 J	10,000	410	µg/kg	1668A
PCB 201_2,2',3,3',4,5',6,6'-OcCB	0.0877 J	10,000	410	µg/kg	1668A
PCB 202_2,2',3,3',5,5',6,6'-OcCB	0.125 BJ	10,000	410	µg/kg	1668A
PCB 203_2,2',3,4,4',5,5',6-OcCB	0.481 B	10,000	410	µg/kg	1668A
PCB 204_2,2',3,4,4',5,6,6'-OcCB	ND U	10,000	410	µg/kg	1668A
PCB 205_2,3,3',4,4',5,5',6-OcCB	0.0329 J	10,000	410	µg/kg	1668A
PCB 206_2,2',3,3',4,4',5,5',6-NoCB	0.251 B	10,000	410	µg/kg	1668A
PCB 207_2,2',3,3',4,4',5,6,6'-NoCB	0.0379 BJK	10,000	410	µg/kg	1668A
PCB 208_2,2',3,3',4,5,5',6,6'-NoCB	0.0748 BJ	10,000	410	µg/kg	1668A
PCB 209_DeCB	0.113 B	10,000	410	µg/kg	1668A

Table 10. Summary of Polychlorinated Biphenyls Results – Solid Samples

Analyte	Sample ID	Non-wastewater Universal Treatment Standards [a]	Soil Screening Level [b]	Units	Method
	SP-06				
Total MonoCB	00.230	10,000	410	µg /kg	1668A
Total DiCB	0.577	10,000	410	µg /kg	1668A
Total TriCB	7.470	10,000	410	µg /kg	1668A
Total TetraCB	156.000	10,000	410	µg /kg	1668A
Total PentaCB	540.000	10,000	410	µg /kg	1668A
Total HexaCB	462.000	10,000	410	µg /kg	1668A
Total HeptaCB	60.000	10,000	410	µg /kg	1668A
Total OctaCB	2.910	10,000	410	µg /kg	1668A
Total NonaCB	0.363	10,000	410	µg /kg	1668A
Total PCBs	1,230.000	10,000	410	µg /kg	1668A

a – 10,000 µg/kg Sum of all PCB isomers, or all Aroclors.
b – Region III soil screening level in general is 410 µg/kg for all PCBs.
B - Indicates the associated analyte is found in the method blank, as well as in the sample.
E - Indicates an estimated value – used when the analyte concentration exceeds the upper end of the linear calibration range.
J – Indicates an estimated value – used when the analyte concentration is below the method reporting limit (MRL) and above the estimated detection limit (EDL).
K - EMPC - When the ion abundance ratios associated with a particular compound are outside the QC limits, samples are flagged with a 'K' flag. A 'K' flag indicates an estimated maximum possible concentration for the associated compound.
ND – Indicates concentration is reported as 'Not Detected'.
U – Indicates the compound was analyzed and not detected.
Underline – Exceedance of soil screening level.

Table 11. Summary of Polychlorinated Biphenyls Results – Liquid Samples

Analyte	Sample ID		Wastewater Universal Treatment Standards [a]	Units	Method
	SP-05	SP-07			
PCB 1_2-MoCB	3.490	ND U	100,000	ng /l	1668A
PCB 2_3-MoCB	0.0884 K	ND U	100,000	ng /l	1668A
PCB 3_4-MoCB	2.900	ND U	100,000	ng /l	1668A
PCB 4_2,2'-DiCB	ND U	ND U	100,000	ng /l	1668A
PCB 5_2,3-DiCB	ND U	ND U	100,000	ng /l	1668A
PCB 6 _2,3'-DiCB	ND U	ND U	100,000	ng /l	1668A
PCB 7_2,4-DiCB	ND U	ND U	100,000	ng /l	1668A
PCB 8_2,4'-DiCB	0.152 J	ND U	100,000	ng /l	1668A
PCB 9_2,4'-DiCB1	ND U	ND U	100,000	ng /l	1668A
PCB 10_2,5-DiCB	ND U	ND U	100,000	ng /l	1668A
PCB 11_2,6-DiCB	0.754 B	0.706 B	100,000	ng /l	1668A
PCBs 12_3,4-DiCB + 13_3,4'-DiCB	ND U	ND U	100,000	ng /l	1668A
PCB 14_3,5-DiCB	ND U	ND U	100,000	ng /l	1668A
PCB 15_4,4'-DiCB	ND U	ND U	100,000	ng /l	1668A
PCB 16_2,2',3-TrCB	ND U	ND U	100,000	ng /l	1668A
PCB 17_2,2',4-TrCB	0.0481 BJ	ND U	100,000	ng /l	1668A
PCB 18_2,2',5-TrCB + 30_2,2',5-TrCB	0.103 BJ	0.109 BJ	100,000	ng /l	1668A
PCB 19_2,2',6-TrCB	0.0821 JK	ND U	100,000	ng /l	1668A
PCBs 20_2,3,3'-TrCB + 28 2,4,4'-TrCB	0.158 BJ	0.165 B	100,000	ng /l	1668A

Table 11. Summary of Polychlorinated Biphenyls Results – Liquid Samples

Analyte	Sample ID				
	SP-05	SP-07	Wastewater Universal Treatment Standards [a]	Units	Method
PCBs 21_2,3,4-TrCB + 33_2',3,4-TrCB	0.105 BJ	0.099 BJ	100,000	ng /l	1668A
PCB 22_2,3,4'-TrCB	0.0651 BJ	0.071 BJ	100,000	ng /l	1668A
PCB 23_2,3,5-TrCB	ND U	ND U	100,000	ng /l	1668A
PCB 24_2,3,6-TrCB	0.121 J	ND U	100,000	ng /l	1668A
PCB 25_2,3',4-TrCB	ND U	ND U	100,000	ng /l	1668A
PCBs 26_2,3',5-TrCB + 29_2,4,5-TrCB	ND U	ND U	100,000	ng /l	1668A
PCB 27_2,3',6-TrCB	ND U	ND U	100,000	ng /l	1668A
PCB 31_2,4',5-TrCB	0.133 BJ	0.178 BJ	100,000	ng /l	1668A
PCB 32_2,4',6-TrCB	0.0377 BJ	ND U	100,000	ng /l	1668A
PCB 34_2',3,5-TrCB	0.0968 JK	ND U	100,000	ng /l	1668A
PCB 35_3,3',4-TrCB	ND U	ND U	100,000	ng /l	1668A
PCB 36_3,3',5-TrCB	ND U	ND U	100,000	ng /l	1668A
PCB 37_3,4,4'-TrCB	0.0876 JK	0.0349 BJ	100,000	ng /l	1668A
PCB 38_3,4,5-TrCB	ND U	ND U	100,000	ng /l	1668A
PCB 39_3,4',5-TrCB	ND U	ND U	100,000	ng /l	1668A
PCBs 41_2,2',3,4-TeCB + 71_2,3',4',6-TeCB + 40_2,2',3,3'-TeCB	0.067 BJ	0.241 BJ	100,000	ng /l	1668A
PCB 42_2,2',3,4'-TeCB	ND U	0.105 BJ	100,000	ng /l	1668A
PCBs 43_2,2',3,5-TeCB + 73_2,3',5',6-TeCB	ND U	ND U	100,000	ng /l	1668A
PCBs 44 2,2',3,5'-TeCB + 47_2,2',3,4'-TeCB + 65_2,3,5,6-TeCB	0.176 BJ	1.190 B	100,000	ng /l	1668A
PCBs 45_2,2',3,6-TeCB + 51_2,2',4,6'-TeCB	ND U	ND U	100,000	ng /l	1668A

Table 11. Summary of Polychlorinated Biphenyls Results – Liquid Samples

Analyte	Sample ID				
	SP-05	SP-07	Wastewater Universal Treatment Standards [a]	Units	Method
PCB 46_2,2',3,6'-TeCB	0.0779 JK	ND U	100,000	ng /l	1668A
PCB 48_2,2',4,5-TeCB	ND U	0.0509 BJK	100,000	ng /l	1668A
PCBs 49_ 2,2',4,5'-TeCB + 69_2,3',4,6-TeCB	0.0874 BJ	0.486 BJ	100,000	ng /l	1668A
PCBs 50_2,2',4,6-TeCB + 53_2,2',5,6'-TeCB	ND U	0.0526 JK	100,000	ng /l	1668A
PCB 52_2,2',5,5'-TeCB	0.0298 BJ	2.550 B	100,000	ng /l	1668A
PCB 54_2,2',6,6'-TeCB	ND U	ND U	100,000	ng /l	1668A
PCB 55_2,3,3',4'-TeCB	ND U	ND U	100,000	ng /l	1668A
PCB 56_2,3,3',4'-TeCB	0.0856 BJ	0.431 B	100,000	ng /l	1668A
PCB 57_2,3,3',5-TeCB	0.645 K	ND U	100,000	ng /l	1668A
PCB 58_2,3,3',5'-TeCB	ND U	0.126 J	100,000	ng /l	1668A
PCBs 59_2,3,3',6-TeCB + 62_2,3,4,6-TeCB + 75_2,4,4',6-TeCB	ND U	ND U	100,000	ng /l	1668A
PCB 60_2,3,4,4'-TeCB	0.0471 BJK	0.171 BJ	100,000	ng /l	1668A
PCBs 61_2,3,4,5-TeCB + 70_2,3',4',5-TeCB + 74_2,4,4',5-TeCB + 76_2',3,4',5-TeCB	0.238 BJ	3.100 B	100,000	ng /l	1668A
PCB 63_2,3,4',5-TeCB	ND U	ND U	100,000	ng /l	1668A
PCB 64_2,3,4',6-TeCB	0.0493 BJK	0.348 B	100,000	ng /l	1668A
PCB 66_2,3',4,4'-TeCB	0.0839 BJK	0.713 B	100,000	ng /l	1668A
PCB 67_2,3',4,5-TeCB	ND U	ND U	100,000	ng /l	1668A
PCB 68_2,3',4,5'-TeCB	ND U	ND U	100,000	ng /l	1668A
PCB 72_2,3',5,5'-TeCB	ND U	ND U	100,000	ng /l	1668A
PCB 77 3,3',4,4'-TeCB	ND U	0.0424 J	100,000	ng /l	1668A
PCB 78_3,3',4,5-TeCB	ND U	ND U	100,000	ng /l	1668A

Table 11. Summary of Polychlorinated Biphenyls Results – Liquid Samples

Analyte	Sample ID				
	SP-05	SP-07	Wastewater Universal Treatment Standards [a]	Units	Method
PCB 79_3,3',4,5'-TeCB	ND U	0.0468 J	100,000	ng /l	1668A
PCB 80_3,3',5,5'-TeCB	ND U	ND U	100,000	ng /l	1668A
PCB 81_3,4,4',5-TeCB2	ND U	ND U	100,000	ng /l	1668A
PCB 82_2,2',3,3',4-PeCB	0.0497 BJK	0.833 B	100,000	ng /l	1668A
PCBs 83_2,2',3,3',5-PeCB + 99_2,2',4,4',5-PeCB	0.209 BJ	2.900B	100,000	ng /l	1668A
PCB 84_2,2',3,3',6-PeCB	0.125 BJ	1.530 B	100,000	ng /l	1668A
PCBs 85_2,2',3,4,4'-PeCB + 116_2,3,4,5,6-PeCB	0.0653 BJ	0.962 B	100,000	ng /l	1668A
PCBs 86_2,2',3,4,5-PeCB + 87_2,2',3,4,5'-PeCB + 97_2,2',3',4,5-PeCB + 109_2,3,3',4,6-PeCB + 119_2,3',4,4',6-PeCB + 125_2',3,4,5,6'-PeCB	0.341 BJ	ND U	100,000	ng /l	1668A
PCBs 88_2,2',3,4,6-PeCB + 91_2,2',3,4',6-PeCB	0.0538 BJ	0.592 B	100,000	ng /l	1668A
PCB 89_2,2',3,4,6'-PeCB	ND U	0.0307 JK	100,000	ng /l	1668A
PCBs 90 2,2',3,4',5-PeCB + 101_2,2',4,5,5'-PeCB + 113_2,3,3',5',6-PeCB	0.430 BJ	6.170 B	100,000	ng /l	1668A
PCB 92_2,2',3,5,5'-PeCB	0.0679 BJ	0.987 B	100,000	ng /l	1668A
PCBs 93_2,2',3,5,6-PeCB + 100_2,2',4,4',6-PeCB	ND U	ND U	100,000	ng /l	1668A
PCB 94_2,2',3,5,6'-PeCB	ND U	ND U	100,000	ng /l	1668A
PCB 95_2,2',3,5',6-PeCB	0.298 BJ	3.690 B	100,000	ng /l	1668A
PCB 96_2,2',3,6,6'-PeCB	ND U	ND U	100,000	ng /l	1668A
PCBs 98_2,2',3',4,6-PeCB + 102_2,2',4,5,6'-PeCB	ND U	0.0949 J	100,000	ng /l	1668A
PCB 103_2,2',4,5,6'-PeCB	ND U	ND U	100,000	ng /l	1668A

Table 11. Summary of Polychlorinated Biphenyls Results – Liquid Samples

Analyte	Sample ID				
	SP-05	SP-07	Wastewater Universal Treatment Standards [a]	Units	Method
PCB 104_2,2',4,6,6'-PeCB	ND U	ND U	100,000	ng /l	1668A
PCB 105_2,3,3'4,4'-PeCB	0.201 BJ	2.910 B	100,000	ng /l	1668A
PCB 106_2,3,3',4,5-PeCB	ND U	ND U	100,000	ng /l	1668A
PCB 107_2,3,3',4',5-PeCB	0.0378 J	0.487 J	100,000	ng /l	1668A
PCBs 108_2,3,3',4,5'-PeCB + 124_2',3,4,5,5'-PeCB	ND U	ND U	100,000	ng /l	1668A
PCBs 110_2,3,3',4',6-PeCB + 115_2,3,4,4',6-PeCB	0.545 BJ	8.470 B	100,000	ng /l	1668A
PCB 111_2,3,3',5,5'-PeCB	ND U	ND U	100,000	ng /l	1668A
PCB 112_2,3,3',5,6-PeCB	ND U	ND U	100,000	ng /l	1668A
PCB 114_2,3,4,4',5-PeCB	ND U	0.148 J	100,000	ng /l	1668A
PCB 117_2,3,4',5,6-PeCB	ND U	0.106 JK	100,000	ng /l	1668A
PCB 118_2,3',4,4',5-PeCB	0.430 BJ	6.280 B	100,000	ng /l	1668A
PCB 120_2,3',4,5,5'-PeCB	ND U	ND U	100,000	ng /l	1668A
PCB 121_2,3',4,5,6-PeCB	ND U	ND U	100,000	ng /l	1668A
PCB 122_2',3,3',4,5-PeCB	ND U	0.0661 JK	100,000	ng /l	1668A
PCB 123_2',3,4,4',5-PeCB	ND U	0.100 J	100,000	ng /l	1668A
PCB 126_3,3',4,4',5-PeCB	ND U	ND U	100,000	ng /l	1668A
PCB 127_3,3',4,5,5'-PeCB	ND U	ND U	100,000	ng /l	1668A
PCBs 128_2,2',3,3',4,4'-HxCB + 166_2,3,4,4',5,6-HxCB	0.103 BJK	1.440 B	100,000	ng /l	1668A
PCBs 129_2,2',3,3',4,5-HxCB + 138_2,2',3,4,4',5'-HxCB + 163_2,3,3',4',5,6-HxCB	0.549 BJ	7.220 B	100,000	ng /l	1668A
PCB 130_2,2',3,3',4,5'-HxCB	0.0471 J	0.491 BJ	100,000	ng /l	1668A
PCB 131_2,2',3,3',4,6-HxCB	ND U	0.125 J	100,000	ng /l	1668A
PCB 132_2,2',3,3',4,6'-HxCB	0.174 BJ	2.620 B	100,000	ng /l	1668A
PCB 133_2,2',3,3',5,5'-HxCB	ND U	0.0642 J	100,000	ng /l	1668A

Table 11. Summary of Polychlorinated Biphenyls Results – Liquid Samples

Analyte	Sample ID				
	SP-05	SP-07	Wastewater Universal Treatment Standards [a]	Units	Method
PCB 134_2,2',3,3',5,6-HxCB	0.0222 JK	0.393 J	100,000	ng/l	1668A
PCBs 135_2,2',3,3',5,6'-HxCB + 151_2,2',3,5,5',6-HxCB	ND U	1.030 B	100,000	ng/l	1668A
PCB 136_2,2',3,3',6,6'-HxCB	0.0336 BJ	0.487 B	100,000	ng/l	1668A
PCB 137_2,2',3,4,4',5-HxCB	0.0260 JK	0.451 BJK	100,000	ng/l	1668A
PCBs 139_2,2',3,4,4',6-HxCB + 140_2,2',3,4,4',6'-HxCB	ND U	0.146 J	100,000	ng/l	1668A
PCB 141_2,2',3,4,5,5'-HxCB	0.0925 BJ	1.010 B	100,000	ng/l	1668A
PCB 142_2,2',3,4,5,6-HxCB	ND U	ND U	100,000	ng/l	1668A
PCB 143_2,2',3,4,5,6'-HxCB	ND U	ND U	100,000	ng/l	1668A
PCB 144_2,2',3,4,5',6-HxCB	ND U	0.188 J	100,000	ng/l	1668A
PCB 145_2,2',3,4,6,6'-HxCB	ND U	ND U	100,000	ng/l	1668A
PCB 146_2,2',3,4',5,5'-HxCB	0.0402 BJK	0.623 B	100,000	ng/l	1668A
PCBs 147_2,2',3,4',5,6-HxCB + 149_2,2',3,4',5',6-HxCB	0.265 BJ	3.660 B	100,000	ng/l	1668A
PCB 148_2,2',3,4',5,6'-HxCB	ND U	ND U	100,000	ng/l	1668A
PCB 150_2,2',3,4',6,6'-HxCB	ND U	ND U	100,000	ng/l	1668A
PCB 152_2,2',3,5,6,6'-HxCB	ND U	ND U	100,000	ng/l	1668A
PCBs 153 2,2',4,4',5,5'-HxCB + 168_2,3',4,4',5',6-HxCB	0.303 BJ	3.820 B	100,000	ng/l	1668A
PCB 154_2,2',4,4',5',6-HxCB	ND U	0.0321 J	100,000	ng/l	1668A
PCB 155_2,2',4,4',6,6'-HxCB	ND U	ND U	100,000	ng/l	1668A
PCBs 156_2,3,3',4,4',5-HxCB + 157_2,3,3',4,4',5'-HxCB2	0.0765 BJK	0.988 B	100,000	ng/l	1668A
PCB 158_2,3,3',4,4',6-HxCB	0.0587 BJ	0.831 B	100,000	ng/l	1668A
PCB 159_2,3,3',4,5,5'-HxCB	ND U	ND U	100,000	ng/l	1668A
PCB 160_2,3,3',4,5,6-HxCB	ND U	ND U	100,000	ng/l	1668A
PCB 161_2,3,3',4,5',6-HxCB	ND U	ND U	100,000	ng/l	1668A

Table 11. Summary of Polychlorinated Biphenyls Results – Liquid Samples

Analyte	Sample ID		Wastewater Universal Treatment Standards [a]	Units	Method
	SP-05	SP-07			
PCB 162_2,3,3',4',5,5'-HxCB	ND U	ND U	100,000	ng /l	1668A
PCB 164_2,3,3',4',5',6-HxCB	0.0359 BJ	0.412 BJK	100,000	ng /l	1668A
PCB 165_2,3,3',5,5',6-HxCB	ND U	ND U	100,000	ng /l	1668A
PCB 167_2,3,4,4',5,5'-HxCB2	0.0231 BJK	0.272 BJ	100,000	ng /l	1668A
PCB 169_3,3',4,4',5,5'-HxCB	ND U	ND U	100,000	ng /l	1668A
PCB 170_2,2',3,3',4,4',5-HpCB	0.0654 JK	0.571 B	100,000	ng /l	1668A
PCBs 171_2,2',3,3',4,4',6-HpCB + 173_2,2',3,3',4,5,6-HpCB	0.0205 J	0.175 JK	100,000	ng /l	1668A
PCB 172_2,2',3,3',4,5,5'-HpCB	ND U	0.0689 JK	100,000	ng /l	1668A
PCB 174_2,2',3,3',4,5,6'-HpCB	0.0492 BJ	0.387 BJ	100,000	ng /l	1668A
PCB 175_2,2',3,3',4,5',6-HpCB	ND U	ND U	100,000	ng /l	1668A
PCB 176_2,2',3,3',4,6,6'-HpCB	ND U	0.0443 J	100,000	ng /l	1668A
PCB 177_2,2',3,3',4',5,6-HpCB	0.0277 JK	0.123 BJK	100,000	ng /l	1668A
PCB 178_2,2',3,3',5,5',6-HpCB	ND U	0.0469 J	100,000	ng /l	1668A
PCB 179_2,2',3,3',5,6,6'-HpCB	0.0124 JK	0.102 BJ	100,000	ng /l	1668A
PCBs 180_2,2',3,4,4',5,5'-HpCB + 193_2,3,3',4',5,5',6-HpCB	0.108 BJ	0.701 B	100,000	ng /l	1668A
PCB 181_2,2',3,4,4',5,6-HpCB	ND U	ND U	100,000	ng /l	1668A
PCB 182_2,2',3,4,4',5,6'-HpCB	ND U	ND U	100,000	ng /l	1668A
PCB 183_2,2',3,4,4',5',6-HpCB	0.0252 JK	0.251 BJ	100,000	ng /l	1668A
PCB 184_2,2',3,4,4',6,6'-HpCB	ND U	ND U	100,000	ng /l	1668A
PCB 185_2,2',3,4,5,5',6-HpCB	ND U	ND U	100,000	ng /l	1668A
PCB 186_2,2',3,4,5,6,6'-HpCB	ND U	ND U	100,000	ng /l	1668A
PCB 187_2,2',3,4,5,5',6-HpCB	0.0452 BJ	0.277 BJ	100,000	ng /l	1668A
PCB 188_2,2',3,4',5,6,6'-HpCB	ND U	ND U	100,000	ng /l	1668A
PCB 189_2,3,3',4,4',5,5'-HpCB	ND U	0.0207 JK	100,000	ng /l	1668A

Table 11. Summary of Polychlorinated Biphenyls Results – Liquid Samples

Analyte	Sample ID				
	SP-05	SP-07	Wastewater Universal Treatment Standards [a]	Units	Method
PCB 190_2,3,3',4,4',5,6-HpCB	ND U	0.0974 BJ	100,000	ng /l	1668A
PCB 191_2,3,3',4,4',5',6-HpCB	ND U	0.0179 JK	100,000	ng /l	1668A
PCB 192_2,3,3',4,5,5',6-HpCB	ND U	ND U	100,000	ng /l	1668A
PCB 194_2,2',3,3',4,4',5,5'-OcCB	0.0261 J	0.0425 BJK	100,000	ng /l	1668A
PCB 195_2,2',3,3',4,4',5,6-OcCB	ND U	0.0238 J	100,000	ng /l	1668A
PCB 196_2,2',3,3',4,4',5,6'-OcCB	ND U	0.0255 BJ	100,000	ng /l	1668A
PCB 197_2,2',3,3',4,4',6,6'-OcCB	ND U	ND U	100,000	ng /l	1668A
PCBs 198_2,2',3,3',4,5,5',6-OcCB + 199_2,2',3,3',4,5,5',6'-OcCB	0.0414 BJK	0.0647 BJ	100,000	ng /l	1668A
PCB 200_2,2',3,3',4,5,6,6'-OcCB	ND U	ND U	100,000	ng /l	1668A
PCB 201_2,2',3,3',4,5',6,6'-OcCB	ND U	ND U	100,000	ng /l	1668A
PCB 202_2,2',3,3',5,5',6,6'-OcCB	ND U	ND U	100,000	ng /l	1668A
PCB 203_2,2',3,4,4',5,5',6-OcCB	0.0268 BJ	0.0359 BJ	100,000	ng /l	1668A
PCB 204_2,2',3,4,4',5,6,6'-OcCB	ND U	ND U	100,000	ng /l	1668A
PCB 205_2,3,3',4,4',5,5',6-OcCB	ND U	ND U	100,000	ng /l	1668A
PCB 206_2,2',3,3',4,4',5,5',6-NoCB	0.0637 BJ	0.052 BJK	100,000	ng /l	1668A
PCB 207_2,2',3,3',4,4',5,6,6'-NoCB	ND U	ND U	100,000	ng /l	1668A
PCB 208_2,2',3,3',4,5,5',6,6'-NoCB	0.0188 J	ND U	100,000	ng /l	1668A
PCB 209_DeCB	0.0243 BJ	0.0418 BJ	100,000	ng /l	1668A
Total MonoCB	6.470	ND U	100,000	ng /l	1668A
Total DiCB	0.906	0.706	100,000	ng /l	1668A
Total TriCB	1.040	0.657	100,000	ng /l	1668A
Total TetraCB	1.860	9.650	100,000	ng /l	1668A
Total PentaCB	2.510	36.300	100,000	ng /l	1668A
Total HexaCB	1.850	26.300	100,000	ng /l	1668A
Total HeptaCB	0.353 J	2.970	100,000	ng /l	1668A
Total OctaCB	0.0942 J	0.193 J	100,000	ng /l	1668A

Table 11. Summary of Polychlorinated Biphenyls Results – Liquid Samples

Analyte	Sample ID				
	SP-05	SP-07	Wastewater Universal Treatment Standards [a]	Units	Method
Total NonaCB	0.0825 J	0.052 J	100,000	ng /l	1668A
Total PCBs	15.500	76.90	100,000	ng /l	1668A

a – 100,000 ng/l Sum of all PCB isomers, or all Aroclors.
B - Indicates the associated analyte is found in the method blank, as well as in the sample.
J – Indicates an estimated value – used when the analyte concentration is below the method reporting limit (MRL) and above the estimated detection limit (EDL).
K - EMPC - When the ion abundance ratios associated with a particular compound are outside the QC limits, samples are flagged with a 'K' flag. A 'K' flag indicates an estimated maximum possible concentration for the associated compound.
ND – Indicates concentration is reported as 'Not Detected'.
U – Indicates the compound was analyzed and not detected.

Table 11. Summary of pH Results

Sample Point	Result	Units	Method
SP-01	2.3	S.U.	SM 4500
SP-02	**0.8**	S.U.	SM 4500
SP-03	12.5	S.U.	SM 4500
SP-04	**< 0**	S.U.	SM 4500
SP-05	2.1	S.U.	SM 4500
SP-07	8.2	S.U.	SM 4500

Bold – Exceedance of the corrosive characteristic.

Attachment A

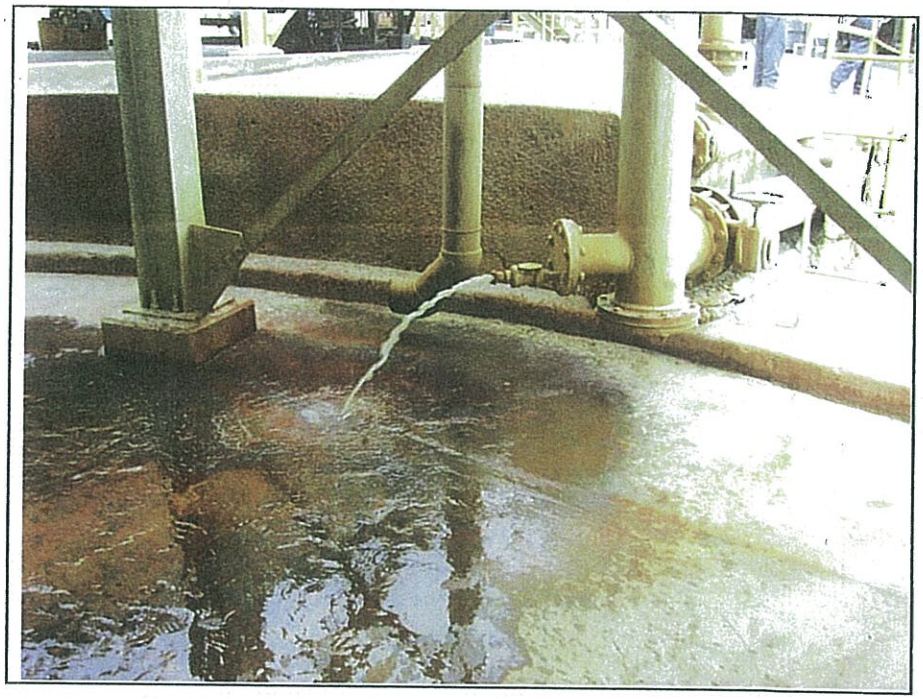
PHOTOGRAPH LOG

FMI Sierrita Operations RCRA CEI
Green Valley, AZ
PHOTO LOG

DATE TAKEN: 8/11/2009
TAKEN BY: A. Loll

SITE LOCATION: FMI Sierrita Operations

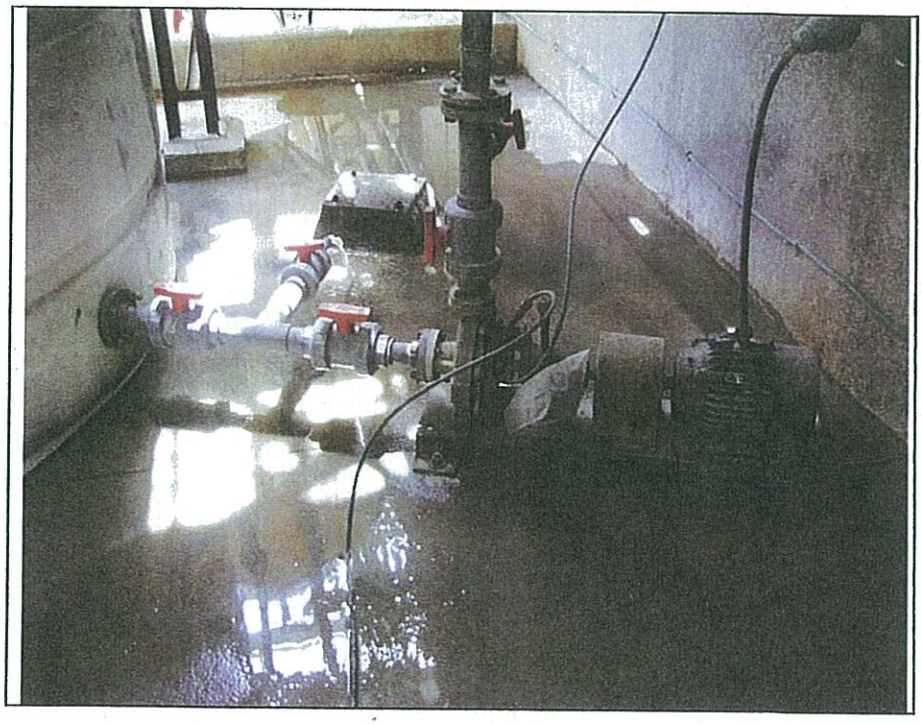
PHOTO #: 1
COMMENTS: SP1 – Leach Thickener Overflow. Sample collected from bleed stream.



DATE TAKEN: 8/11/2009
TAKEN BY: A. Loll

SITE LOCATION: FMI Sierrita Operations

PHOTO #: 2
COMMENTS: SP2 – Rhenium SX Raffinate. Sample collected from bleed stream on feed line to pump.



FMI Sierrita Operations RCRA CEI
Green Valley, AZ
PHOTO LOG

DATE TAKEN: 8/11/2009
TAKEN BY: A. Loll

SITE LOCATION: FMI Sierrita Operations

PHOTO #: 3
COMMENTS: SP3 – Lime Scrubber Bleed. Sample collected from one-inch quick-connect bleed line shown between manual block valve and actuated valve in photograph. A rubber hose was connected to bleed line and run to a suitable drainage location.

DATE TAKEN: 8/11/2009
TAKEN BY: A. Loll

SITE LOCATION: FMI Sierrita Operations

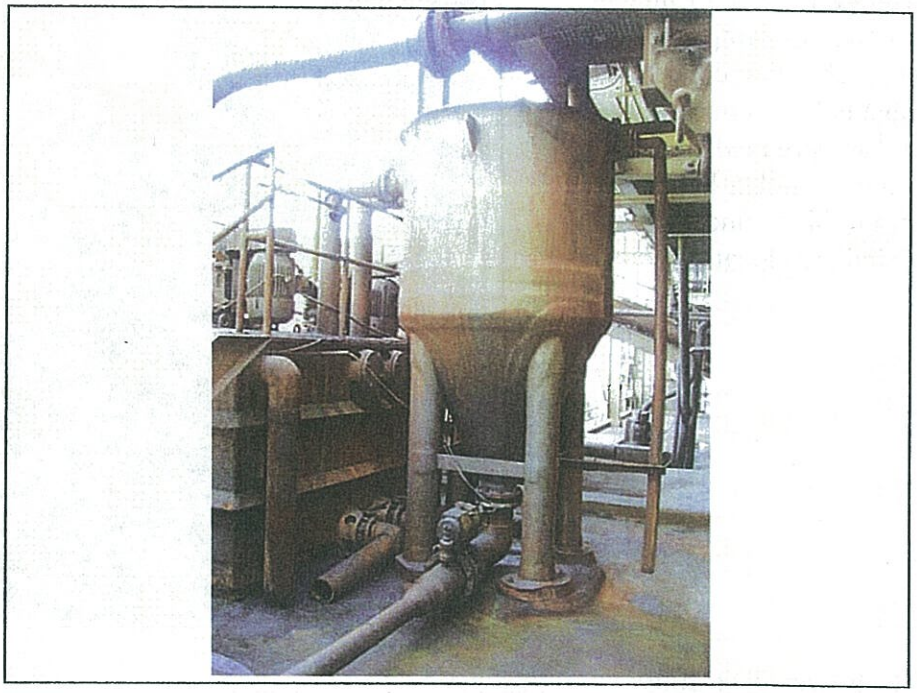
PHOTO #: 4
COMMENTS: SP3 – Lime Scrubber Bleed. Sample was collected from rubber hose attached to bleed line.

FMI Sierrita Operations RCRA CEI
Green Valley, AZ
PHOTO LOG

DATE TAKEN: 8/11/2009
TAKEN BY: A. Loll

SITE LOCATION: FMI Sierrita Operations

PHOTO #: 5
COMMENTS: SP4 – Ferric Solution Leach Bleed. Sample collected from top of open tank using a dipper cup.



DATE TAKEN: 8/11/2009
TAKEN BY: A. Loll

SITE LOCATION: FMI Sierrita Operations

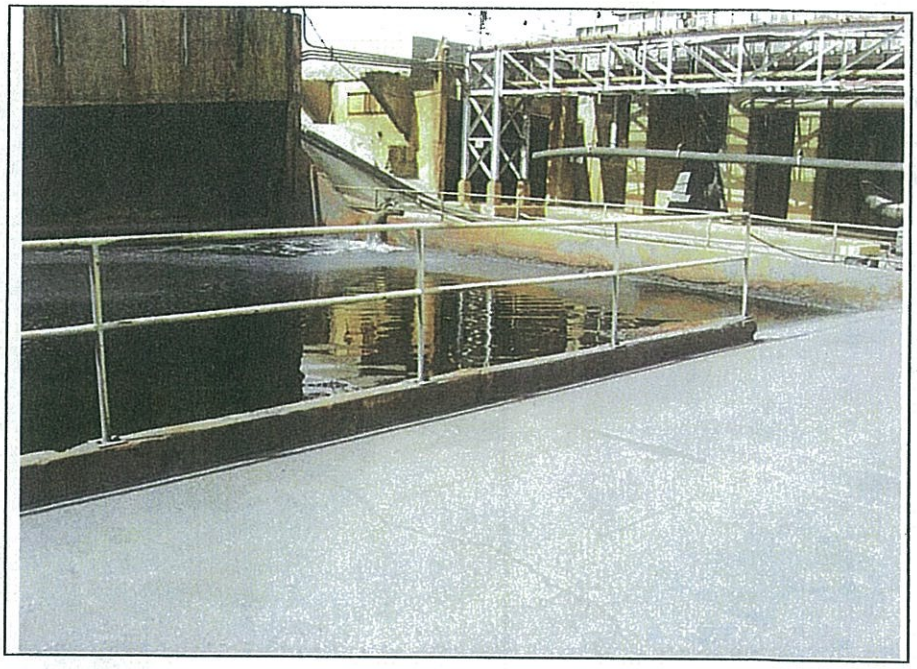
PHOTO #: 6
COMMENTS SP4 – Ferric Solution Leach Bleed. Sample collected from top of open tank using a dipper cup.

FMI Sierrita Operations RCRA CEI
Green Valley, AZ
PHOTO LOG

DATE TAKEN: 8/11/2009
TAKEN BY: A. Loll

SITE LOCATION: FMI Sierrita Operations

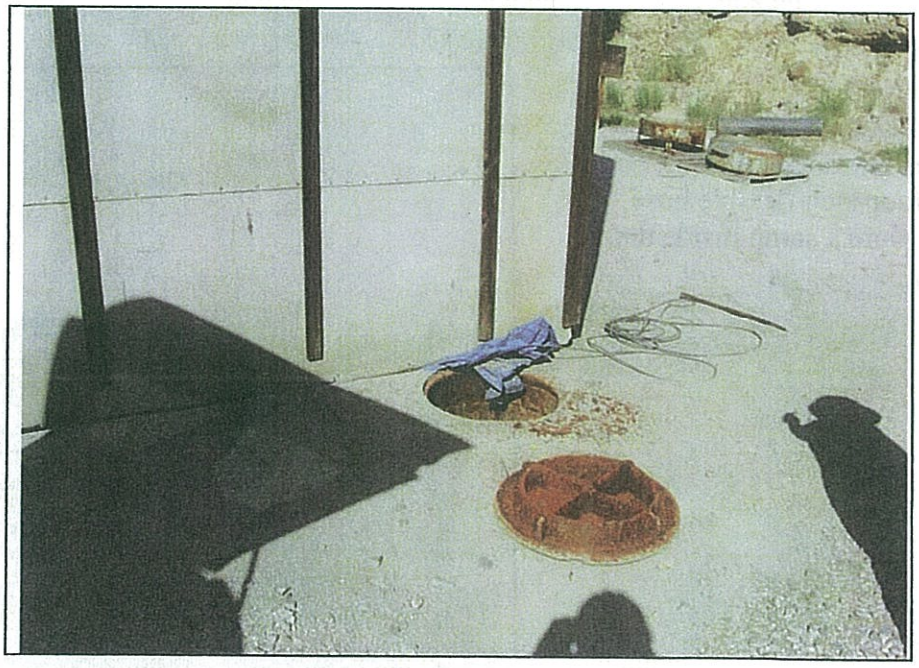
PHOTO #: 7
COMMENTS: SP5 – Molybdenum Decant Pond. Sample was collected from pond using a dipper cup.



DATE TAKEN: 8/12/2009
TAKEN BY: A. Loll

SITE LOCATION: FMI Sierrita Operations

PHOTO #: 8
COMMENTS: SP6 – Analytical Lab Discharge Neutralization Sump. Sediment sample collected from bottom of piping in manway.



FMI Sierrita Operations RCRA CEI
Green Valley, AZ
PHOTO LOG

DATE TAKEN: 8/12/2009
TAKEN BY: A. Loll

SITE LOCATION: FMI Sierrita Operations

PHOTO #: 9
COMMENTS: SP6 – Analytical Lab Discharge Neutralization Sump. Sediment sample collected from bottom of piping in manway.

DATE TAKEN: 8/12/2009
TAKEN BY: A. Loll

SITE LOCATION: FMI Sierrita Operations

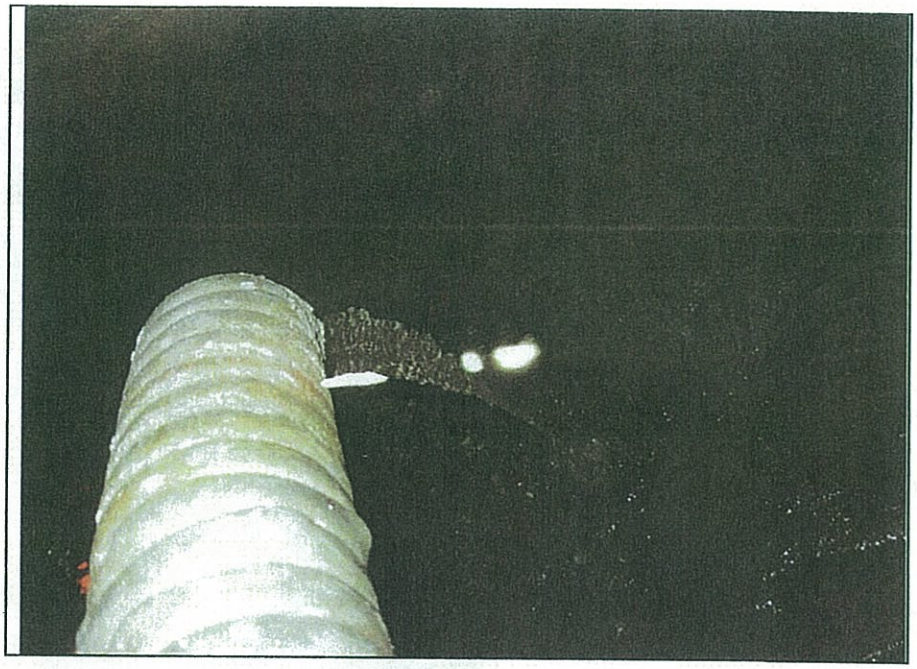
PHOTO #: 10
COMMENTS: SP7 - Lab Neutralization Tank Discharge. Sample collected in a bucket from end of four-inch flexible hose draining into a sump inside the building.

FMI Sierrita Operations RCRA CEI
Green Valley, AZ
PHOTO LOG

DATE TAKEN: 8/12/2009
TAKEN BY: A. Loll

SITE LOCATION: FMI Sierrita Operations

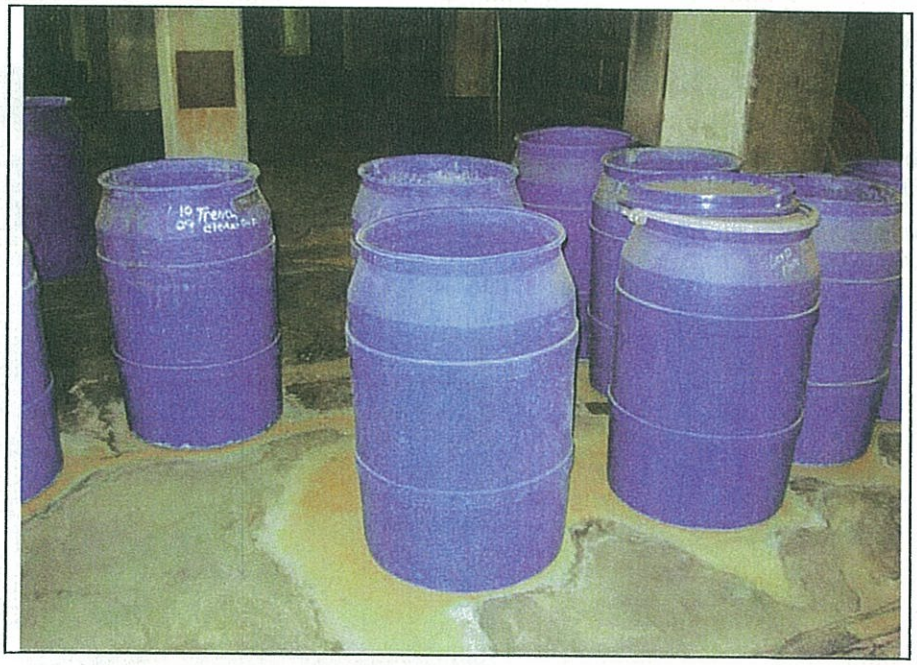
PHOTO #: 11
COMMENTS: SP7 - Lab Neutralization Tank Discharge. Sample collected in a bucket from end of four-inch flexible hose draining into a sump inside the building.



DATE TAKEN: 8/12/2009
TAKEN BY: A. Loll

SITE LOCATION: FMI Sierrita/Twin Buttes Operations

PHOTO #: 12
COMMENTS: SP8 – EW Lead Flakes. Solid sample collected from top of blue drum center and forefront in the photograph. Drums are located in a warehouse area at the Twin Buttes Operations site.



FMI Sierrita Operations RCRA CEI
Green Valley, AZ
PHOTO LOG

DATE TAKEN: 8/12/2009
TAKEN BY: A. Loll

SITE LOCATION: FMI Sierrita/Twin Buttes Operations

PHOTO #: 13
COMMENTS: SP8 – EW Lead Flakes. Solid sample collected from top of blue drum.

DATE TAKEN: 8/12/2009
TAKEN BY: A. Loll

SITE LOCATION: FMI Sierrita/Twin Buttes Operations

PHOTO #: 14
COMMENTS: SP9 – EW Lead Flakes. Solid sample collected from top of blue drum center and forefront in the photograph. Drums are located in a warehouse area at the Twin Buttes Operations site.

FMI Sierrita Operations RCRA CEI
Green Valley, AZ
PHOTO LOG

DATE TAKEN: 8/12/2009
TAKEN BY: A. Loll

SITE LOCATION: FMI Sierrita/Twin Buttes Operations

PHOTO #: 15
COMMENTS: SP9 – EW Lead Flakes. Solid sample collected from top of blue drum.

DATE TAKEN: 8/12/2009
TAKEN BY: A. Loll

SITE LOCATION: FMI Sierrita/Twin Buttes Operations

PHOTO #: 16
COMMENTS: SP10 – EW Lead Flakes. Solid sample collected from top of blue drum centered in the photograph. Drums are located in a warehouse area at the Twin Buttes Operations site.

FMI Sierrita Operations RCRA CEI
Green Valley, AZ
PHOTO LOG

DATE TAKEN: 8/12/2009
TAKEN BY: A. Loll

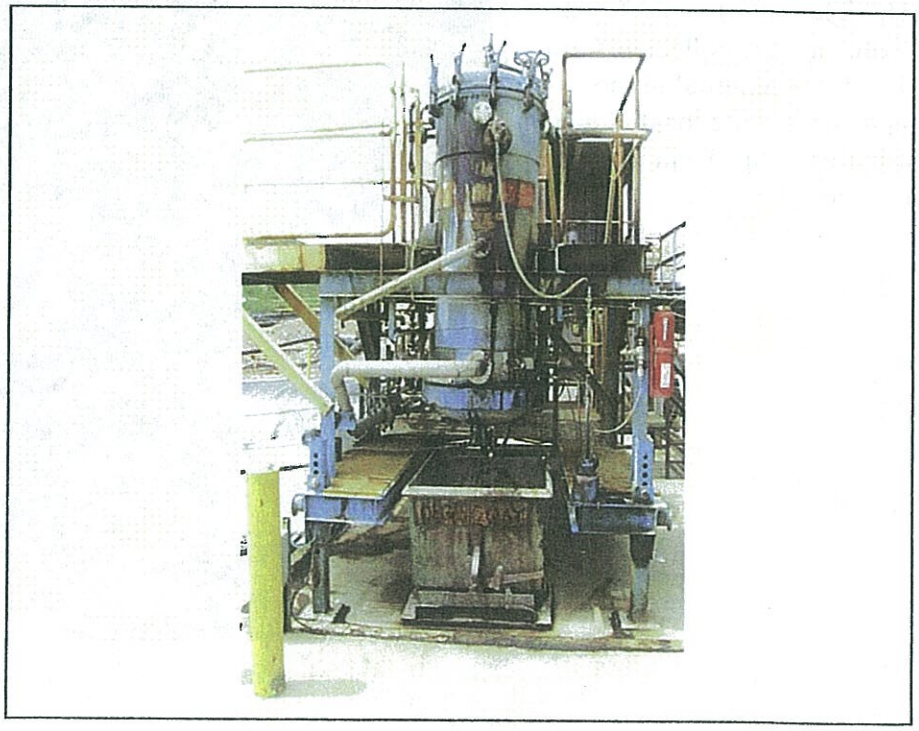
SITE LOCATION: FMI Sierrita/Twin Buttes Operations

PHOTO #: 17
COMMENTS: SP10 – EW Lead Flakes. Solid sample collected from top of blue drum.

DATE TAKEN: 8/11/2009
TAKEN BY: A. Loll

SITE LOCATION: FMI Sierrita Operations

PHOTO #: 18
COMMENTS: SP11 – SX Crud. Solid sample collected from crud collection bin.



FMI Sierrita Operations RCRA CEI
Green Valley, AZ
PHOTO LOG

DATE TAKEN: 8/12/2009
TAKEN BY: A. Loll

SITE LOCATION: FMI Sierrita Operations

PHOTO #: 19
COMMENTS: SP11 – SX Crud. Solid sample collected from crud collection bin.

Attachment B

CHAIN-OF-CUSTODY FORMS

07080206

SEVERN TRENT **STL** CAS

Severn Trent Laboratories, Inc.

Chain of Custody Record

STL-4124 (0901)

Field	Entry
Client	Eastern Research Group
Address	14555 Avion Pkwy Suite 200
City	Chantilly
State	VA
Zip Code	20151
Project Name and Location (State)	MTMPI Arizona Aug 2009
Contract/Purchase Order/Quote No.	
Project Manager	Joe Watson
Telephone Number (Area Code)/Fax Number	703-633-1637
Site Contact	J Capu / Abll
Lab Contact	Skip Jarden
Carrier/Waybill Number	
Date	8-11-09
Lab Number	
Chain of Custody Number	305694
Page	1 of 1

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Matrix: Aqueous	Matrix: Sed	Matrix: Soil		Containers & Preservatives: Unpres	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	X	Analysis: Total Metals	6010/7470	TCLP Metals + Cu (2)	1311/6010/7470	HCB + (1)	PCBs	Total SVOA	8270	TCLP SVOA	1311/8270			Special Instructions/ Conditions of Receipt
SP-1	8-11-09	1339		X				X		X				2	X		X										
SP-2	8-11-09	1402		X				X		X				2	X		X										Strong Acid
SP-3	8-11-09	1430		X				X		X				2	X		X										Alkaline
SP-4	8-11-09	1450		X				X		X				2	X		X										Strong Acid
SP-5	8-11-09	1512		X				X		X				6	X		X		X		X		X				Acidic

Notes: (1) Hexachlorobenzene + PCB congener analysis needed

(2) TCLP Metals needs RCRA metals plus copper

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☒ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal

☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required

☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other Standard

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: Julie Capu	08-12-09	0627	1. Received By: [illegible signature]	8/12/09	0627
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Memorandum
6 November 2009

Draft Enforcement Confidential

09080207

Chain of Custody Record

STL-4124 (0901)

SEVERN TRENT **STL** Severn Trent Laboratories, Inc.

Client: Eastern Research Group	Project Manager: Joe Watson	Date: 081209	Chain of Custody Number: 305695
Address: 14555 Avion Pkwy #200	Telephone Number (Area Code)/Fax Number: 703-633-1639	Lab Number:	Page 1 of 1
City: Chantilly State: VA Zip Code: 20151	Site Contact:	Lab Contact:	
Project Name and Location (State): MtMPI Arizona Sampling Aug 2009	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil		Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	#	Analysis (Attach list if more space is needed): Total Metals	6010/7470	TCLP Metals	1311/6010/7470	Total SVOA	8270	TCLP SVOA	1311/8270	HexChlorBenz	+PCB Congeners	pH		Special Instructions/ Conditions of Receipt
SP-6	081209	0852			X			X						3	X		X		X		X		X				
SP-7	081209	0925		X				X		X				1	X		X		X		X		X		X		
SP-8	081209	1023			X			X						1	X		X										
SP-9	081209	1030			X			X						1	X		X										
SP-10	081209	1036			X			X						1	X		X										
SP-11	081209	1120			X			X						2	X		X		X		X						
SP-12	081209			X				X		X				1	X												

Note: TCLP Metals: RCRA Metals plus Copper

HexaChlorobenzene + PCB Congeners via 1668

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other Standard

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: [signature]	08-13-09	0640	1. Received By: [signature]	8/13/09	0641
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Memorandum
6 November 2009

Draft Enforcement Confidential

Memorandum
6 November 2009

Attachment C

QA/QC DISCUSSION

Memorandum
6 November 2009

Columbia Analytical Services

Client:	Eastern Research Group	**Date Printed:** 28-Sep-09
Work Order:	09080207	
Project Name:	M & MPI Arizona Sampling Aug 2009	**Case Narrative**
Project Number:		

Samples were received intact and within proper temperature criteria.

Results are reported on a wet weight basis unless dry-correction is denoted in the units field on the analytical report ("mg/kg-dry").

All method blanks, laboratory spikes, and/or matrix spikes met quality control objectives for the parameters associated with this Work Order except as detailed below or on the Data Qualifier page of this report. Data Qualifiers used in this report are in accordance with ADEQ Arizona Data Qualifiers, Revision 3.0 9/20/2007.

Data qualifiers ("flags") contained within this analytical report have been issued to explain a quality control deficiency, and do not affect the quality (validity) of the data unless noted otherwise in the case narrative.

Analytical Comments for Method SW8270C, MS/MSD 09080207-01, Batch 3880: N1: No target analytes were detected in the MS. It appears that the spiking standard solution might not have been added during extraction. The RPD can not be correctly calculated due to the missing MS analyte recovery. Since, precision and accuracy was demonstrated for the batch by the LCS/LCSD no further actions were taken.

Analytical Comments for Method SW1311/6010B, MS/MSD 09080207-01, Batch 3904: N1: The matrix spikes for Zinc are above the acceptance limit due to the presence of the analyte at a concentration below the PQL but above the MDL in the parent sample.

Columbia Analytical Services™

Client:	Eastern Research Group	**Date Printed:**	28-Sep-09
Work Order:	09080206		
Project Name:	M & MPI Arizona Sampling Aug 2009		**Case Narrative**
Project Number:			

Samples were received intact and within proper temperature criteria.

Results are reported on a wet weight basis unless dry-correction is denoted in the units field on the analytical report ("mg/kg-dry").

All method blanks, laboratory spikes, and/or matrix spikes met quality control objectives for the parameters associated with this Work Order except as detailed below or on the Data Qualifier page of this report. Data Qualifiers used in this report are in accordance with ADEQ Arizona Data Qualifiers, Revision 3.0 9/20/2007.

Data qualifiers ("flags") contained within this analytical report have been issued to explain a quality control deficiency, and do not affect the quality (validity) of the data unless noted otherwise in the case narrative.

Analytical Comments for Method SW1311/6010B, MS/MSD 09080207-01, Batch 3904: N1: The matrix spikes for Zinc are above the acceptance limit due to the presence of the analyte at a concentration below the PQL but above the MDL in the parent sample.

Memorandum
6 November 2009

Additional Case Narrative Sample-Specific QA/QC Information

The following information was provided by Columbia Analytical Services in the raw data package related to QA/QC issues with specific samples:

- SP-02, SP-03, SP-04 pH Analysis – Analyte Exceeded calibration range. Reanalysis not performed due to matrix.

- SP-05 Total metals analyses for calcium, chromium, copper, nickel, sodium, zinc – The spike recovery was unusable since the analyte concentration in the sample is disproportionate to spike level. The associated blank spike recovery was acceptable.

- SP-08, SP-09, SP-10, & SP-11 Total metals analysis for iron – The target analyte detected in method blank at or above method reporting limit. Concentration found in the sample was 10 times above the concentration found in the method blank.

- SP-09 Total metals analysis for aluminum – Matrix spike recovery was high, the associated blank spike was acceptable. RPD/RSD exceeded the laboratory acceptance limit; antimony, copper, iron, and manganese – The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to spike level. The associated blank spike recovery was acceptable. Barium – Matrix spike recovery was low, the associated blank spike recovery was acceptable.

- SP-11 & SP-12 TCLP and total SVOA analyses – The analysis of the sample required a dilution such that the surrogate recovery calculation does not provide any useful information. The surrogate recovery was zero. The associated blank spike recovery was acceptable.

CASE NARRATIVE – METHOD 1668A – SP-5

All analyses were performed in adherence to the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

One water sample was received for analysis at Columbia Analytical Services on 08/13/09. The sample was received at 0°C in good condition and is consistent with the accompanying chain of custody form. The sample was stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

Method Blank

EQ0900337-01/U220375: All compounds detected in the method blank, with the exception of PCB-11, were less than the MRL.

Y flags – Labeled Standards
Samples that had recoveries of labeled standards outside the acceptance limits are flagged with 'Y' flags on the Form 2s. In all cases, the signal-to-noise ratios are greater than 10:1, making these data acceptable.

K flags
EMPC - When the ion abundance ratios associated with a particular compound are outside the QC limits, samples are flagged with a 'K' flag. A 'K' flag indicates an estimated maximum possible concentration for the associated compound.

MS/DMS
EQ0900337: The batch precision measurements (MS/DMS) were performed on a sample reported on another order.

Detection Limits
Detection limits are calculated for each congener in each sample by measuring the height of the noise level for each quantitation ion for the associated labeled standard. The concentration equivalent to 2.5 times the height of the noise is then calculated using the appropriate response factor and the weight of the sample. The calculated concentration equals the detection limit.

CASE NARRATIVE – METHOD 1668A – SP-6 and SP-7

All analyses were performed in adherence to the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt
One soil and one water samples were received for analysis at Columbia Analytical Services on 08/18/09.
The samples were received at 0°C in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

Method Blank
EQ0900316-01/U220199: All compounds detected in the method blank, with the exception of PCB-11 and PCB-209, were less than the MRL.
EQ0900323-01/U220297: All compounds detected in the method blank, with the exception of PCBs-12&13, PCB-118, PCB-105 and PCBs-129&128&163, were less than the MRL.

Y flags – Labeled Standards
Samples that had recoveries of labeled standards outside the acceptance limits are flagged with 'Y' flags on the Form 2s. In all cases, the signal-to-noise ratios are greater than 10:1, making these data acceptable.

Memorandum
6 November 2009

K flags
EMPC - When the ion abundance ratios associated with a particular compound are outside the QC limits, samples are flagged with a 'K' flag. A 'K' flag indicates an estimated maximum possible concentration for the associated compound.

MS/DMS
EQ0900316: A Laboratory Control Standard (LCS) and a Duplicate Laboratory Control Standard (DLCS) were performed in lieu of an MS/DMS. One compound, PCB-209, was recovered outside the acceptance criteria in the LCS. This compound met the acceptance criteria in the DLCS and the batch was released.
E0900323: A Laboratory Control Standard (LCS) and a Duplicate Laboratory Control Standard (DLCS) were performed in lieu of an MS/DMS. One compound, PCB-118, was recovered outside the acceptance criteria in both the LCS and DLCS. The associated labeled standards were recovered within the acceptance criteria and the batch was released.

Detection Limits
Detection limits are calculated for each congener in each sample by measuring the height of the noise level for each quantitation ion for the associated labeled standard. The concentration equivalent to 2.5 times the height of the noise is then calculated using the appropriate response factor and the weight of the sample. The calculated concentration equals the detection limit.

Attachment D

SAMPLING POINT LOCATION FIGURES

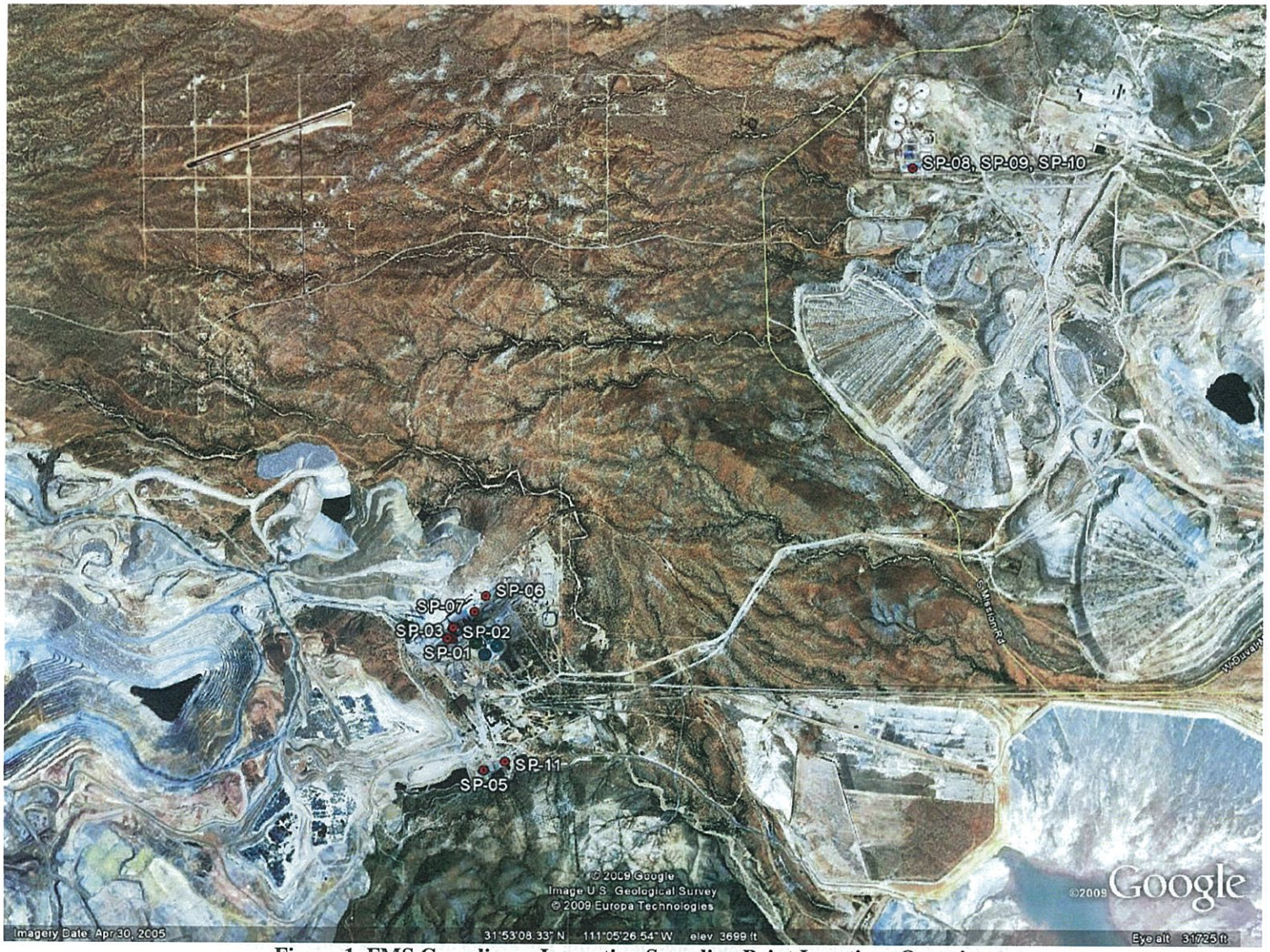


Figure 1. FMS Compliance Inspection Sampling Point Locations Overview

Figure 2. FMS Compliance Inspection Sampling Locations at Sierrita Operations

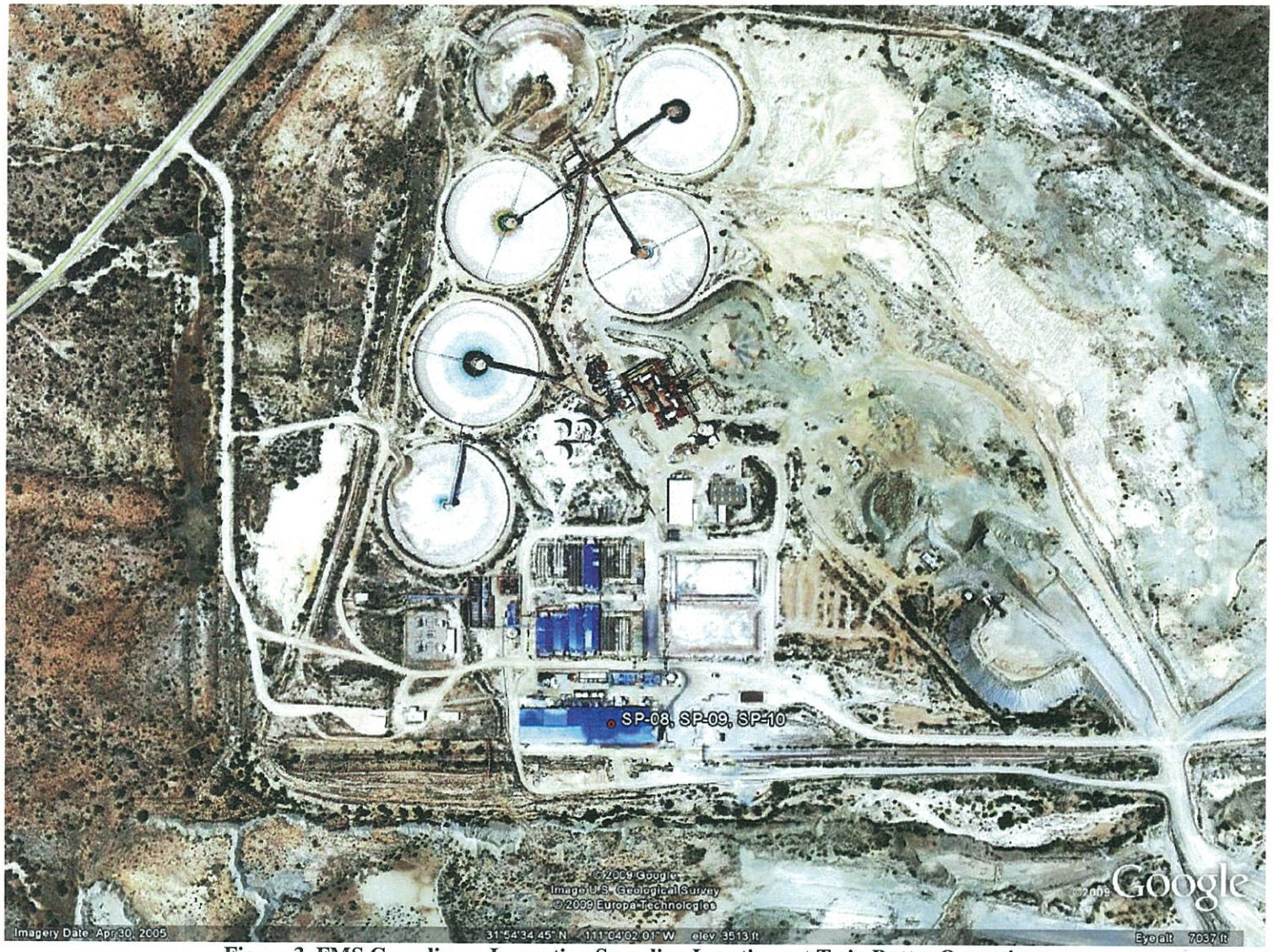


Figure 3. FMS Compliance Inspection Sampling Locations at Twin Buttes Operations

Attachment 6 – Follow-up to Freeport-McMoRan Sierrita, Inc. Inspection, Freeport-McMoRan Sierrita, January 13, 2010

FREEPORT-McMoRan COPPER & GOLD

Freeport-McMoRan Sierrita Inc.
6200 W. Duval Mine Rd.
PO Box 527
Green Valley, Arizona 85622-0527

January 4, 2010

Return Receipt Requested

Certified Mail: # 7008 2810 0000 0983 3573
Mr. Mark Howard
Executive Director
AZ Emergency Response Commission
5636 East McDowell Road
Phoenix, Arizona 85008

Certified Mail # 7008 2810 0000 0983 3597
Mr. John Wisner
LEPC Program Coordinator
Pima Cty Office of Emergency Mngt. & Homeland Security
130 West Congress Street, Level B
Tucson, Arizona 85701

Re: Contingency Plan for Hazardous Waste and Used Oil Processing
Freeport-McMoRan Sierrita Inc., EPA ID AZD982478216

To Whom It May Concern::

As required by 40 CFR §265.53(b) and 40 CFR §279.52, the enclosed CD provides the updated Freeport-McMoRan Sierrita Inc. Contingency Plan for Hazardous Waste and Used Oil Processing. This plan, dated December, 2009, should replace all previous Contingency Plans for Hazardous Waste and Used Oil Processing for this facility.

If you have any questions or require additional information, please contact me at 520-648-8866

Sincerely,

Sherry Burt-Kested
Chief Environmental Engineer

20100104_001
SBK:sbk
Enclosure

cc Sierrita (hard copy): Paul Boman, Wade McGee, Central Accumulation
cc: Pima County Sheriff, Certified Mail # 7008 2810 0000 0983 3603
Green Valley Fire Department, Certified Mail # 7008 2810 0000 0983 3610
Rural Metro Fire Department, Certified Mail # 7008 2810 0000 0983 3627
St. Mary's Hospital, Certified Mail # 7008 2810 0000 0983 3634
University Medical Center, Certified Mail # 7008 2810 0000 0983 3641
Tucson Medical Center, Certified Mail # 7008 2810 0000 0983 3658
UPH at Kino Hospital, Certified Mail # 7008 2810 0000 0983 3665

Freeport-McMoRan Sierrita Inc.
Contingency Plan for Hazardous Waste and Used Oil Processing
Emergency Coordinator Review

I, Paul Boman, have reviewed the Freeport-McMoRan Sierrita, Inc. Contingency Plan for Hazardous Waste and Used Oil Processing (revised December, 2009) and understand my responsibilities in implementing the plan.

Signature: _____ Date: 4/11/10

Freeport-McMoRan Sierrita Inc.
Contingency Plan for Hazardous Waste and Used Oil Processing
Emergency Coordinator Review

I, Richard McGee, have reviewed the Freeport-McMoRan Sierrita, Inc. Contingency Plan for Hazardous Waste and Used Oil Processing (revised December, 2009) and understand my responsibilities in implementing the plan.

Signature: _____ Date: 1/8/2010

6.0 LISTS OF EMERGENCY EQUIPMENT (40 CFR § 265.52(e); 40 CFR § 279.52(a)(2); 40 CFR § 279.52(b)(2)(v))

6.1 Typical Equipment in the Central Accumulation Area

TABLE 3. TYPICAL EQUIPMENT IN THE CENTRAL ACCUMULATION AREA

Equipment	Description	Capabilities
*Fire extinguishers	Class A, B and C Units	Used for small fires & as a means of escape
*Radio	Dedicated radio communication system with 7 channels available	Provides multiple communication extensions throughout the property. Provides communication capability when phone services not available
*Gloves	Latex and Nitrile	PPE for handling of hazardous waste and small scale spill response
*Coveralls	Tyvek Suits	PPE for handling of hazardous waste and small scale spill response
*Absorbents	Absorbents for spill containment or clean-up: absorbent socks, pillows, loose absorbent (floor dry, vermiculite)	Available 24/7 for spill response and containment of small quantity spills from drums or containers
Emergency shower	Emergency shower	For emergency wash-down in the case of contact with hazardous materials
Eyewash station	Eyewash station	For emergency eyewash in the case of hazardous materials in the eyes
Overpack drums	Large Over-Pack drums	Large drums to overpack 1-55 gallon leaking containers
Empty drums	55 gallon open-head and closed-head, metal and poly drums with lids	Drums for spill clean-up materials.
Buckets	5-gallon buckets with lids	Buckets for small spill clean-up or overpacking of small containers
Fiber drums	4ft and 8ft fiber drums	Used for storage of lamps
Shovels	Shovels – hand held	Used for spill cleanup of 1-200 gallons
Brooms	Brooms – hand held	Used for small, dry spill clean up

*Items marked with an asterisk are also provided at the temporary Central Accumulation Area described in Section 4.2 above while in use.

The materials above are also available in the Sierrita Warehouses for use anywhere at the facility including the temporary Central Accumulation Area. Personnel managing wastes also use PPE, such as safety glasses or goggles, gloves, steel toe boots, hand-held radios, cellular phones, and/or the buddy system while working in the area.

6.2 Typical Equipment in the Used Oil Processing Facility

Certificate of Completion

Martha G Motley

(Name of Attendee)

has completed an Annual Hazardous Waste Employee Training Course consisting of eight hours.

Presented by: *Gallagher & Kennedy, P.A.*
Location: *Phoenix Marriott Mesa*
Mesa, Arizona

February 11, 2008

Certificate of Completion

Martha Mothey

(Name of Attendee)

has completed Annual Hazardous Waste Employee Training Course.

Presented by:
Gallagher & Kennedy

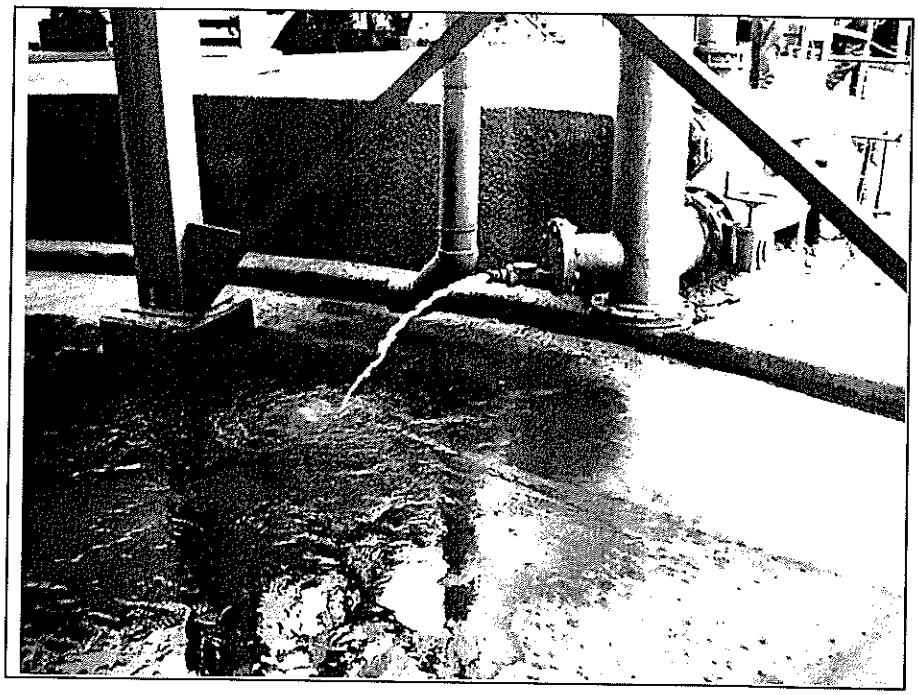
February 6, 2007

FMI Sierrita Operations RCRA CEI
Green Valley, AZ
PHOTO LOG

DATE TAKEN: 8/11/2009
TAKEN BY: A. Loll

SITE LOCATION: FMI Sierrita Operations

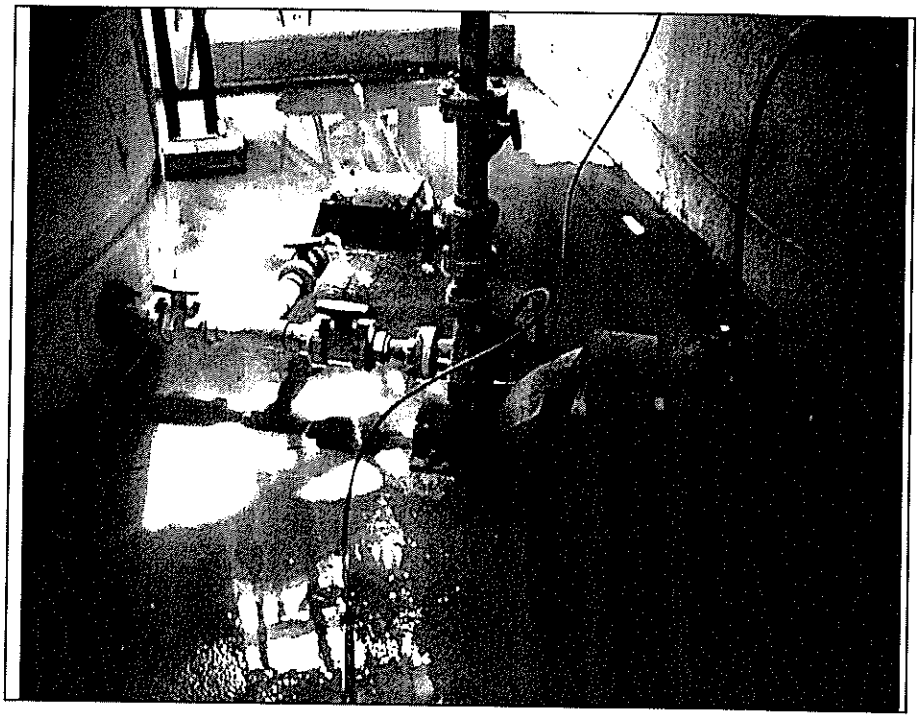
PHOTO #: 1
COMMENTS: SP1 – Leach Thickener Overflow. Sample collected from bleed stream.



DATE TAKEN: 8/11/2009
TAKEN BY: A. Loll

SITE LOCATION: FMI Sierrita Operations

PHOTO #: 2
COMMENTS: SP2 – Rhenium SX Raffinate. Sample collected from bleed stream on feed line to pump.

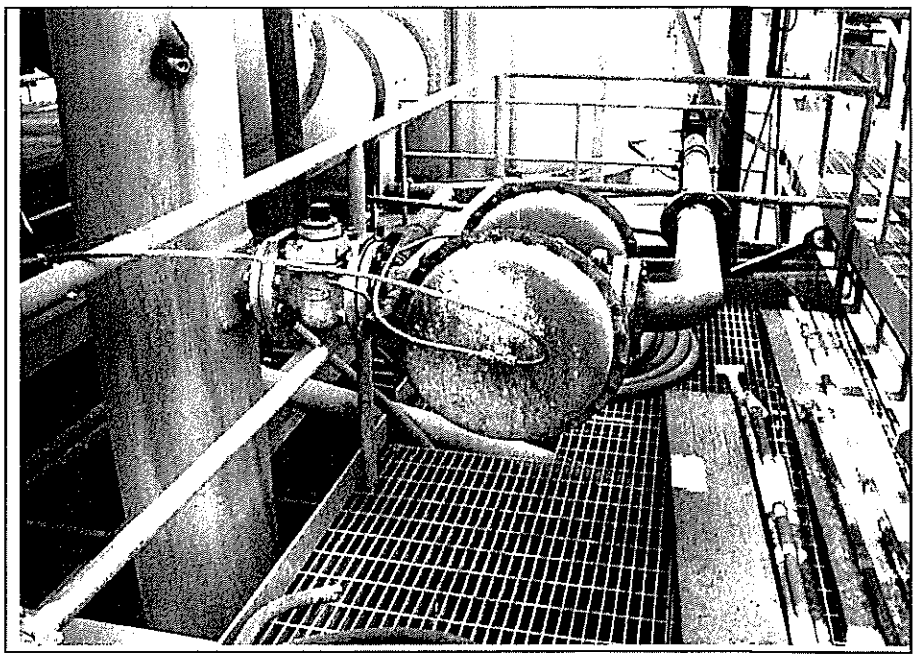


FMI Sierrita Operations RCRA CEI
Green Valley, AZ
PHOTO LOG

DATE TAKEN: 8/11/2009
TAKEN BY: A. Loll

SITE LOCATION: FMI Sierrita Operations

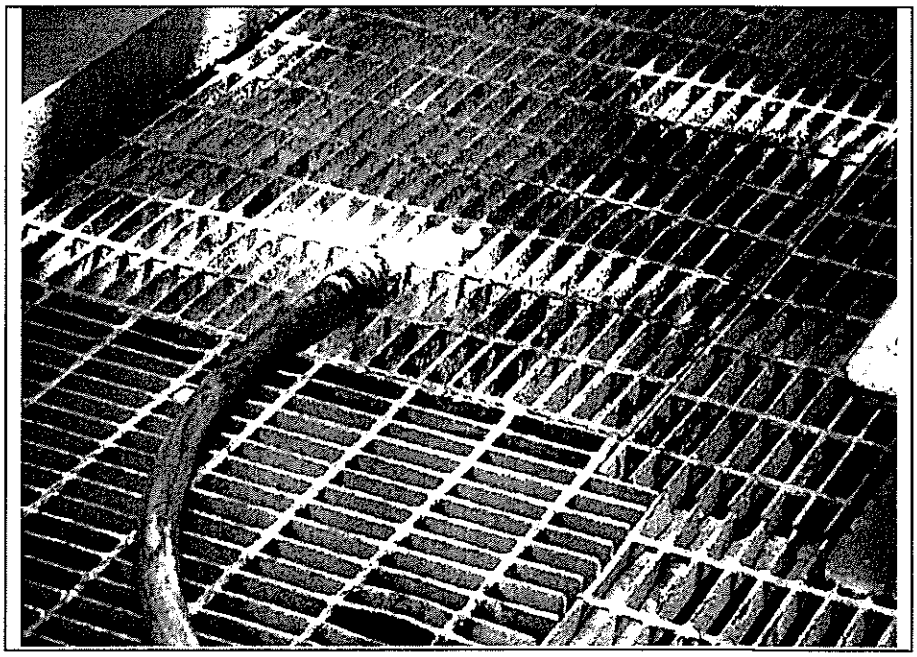
PHOTO #: 3
COMMENTS: SP3 – Lime Scrubber Bleed. Sample collected from one-inch quick-connect bleed line shown between manual block valve and actuated valve in photograph. A rubber hose was connected to bleed line and run to a suitable drainage location.



DATE TAKEN: 8/11/2009
TAKEN BY: A. Loll

SITE LOCATION: FMI Sierrita Operations

PHOTO #: 4
COMMENTS: SP3 – Lime Scrubber Bleed. Sample was collected from rubber hose attached to bleed line.

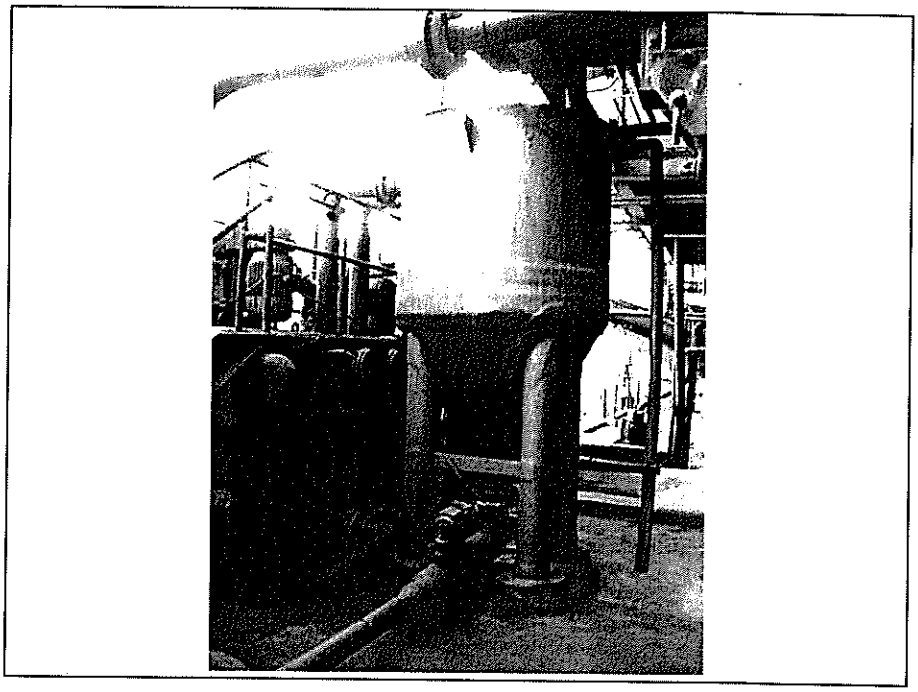


FMI Sierrita Operations RCRA CEI
Green Valley, AZ
PHOTO LOG

DATE TAKEN: 8/11/2009
TAKEN BY: A. Loll

SITE LOCATION: FMI Sierrita Operations

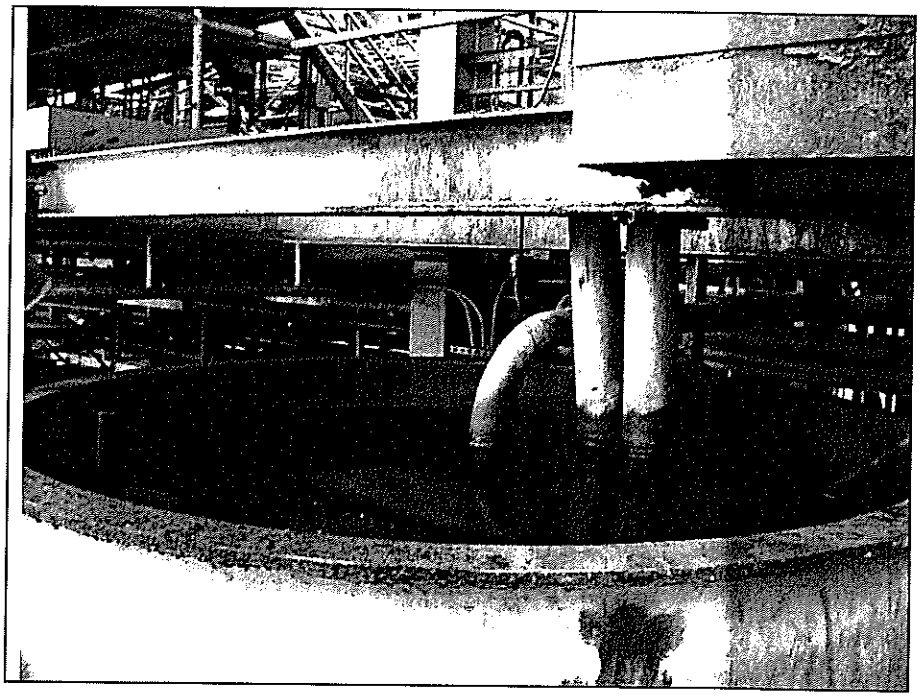
PHOTO #: 5
COMMENTS: SP4 – Ferric Solution Leach Bleed. Sample collected from top of open tank using a dipper cup.



DATE TAKEN: 8/11/2009
TAKEN BY: A. Loll

SITE LOCATION: FMI Sierrita Operations

PHOTO #: 6
COMMENTS SP4 – Ferric Solution Leach Bleed. Sample collected from top of open tank using a dipper cup.

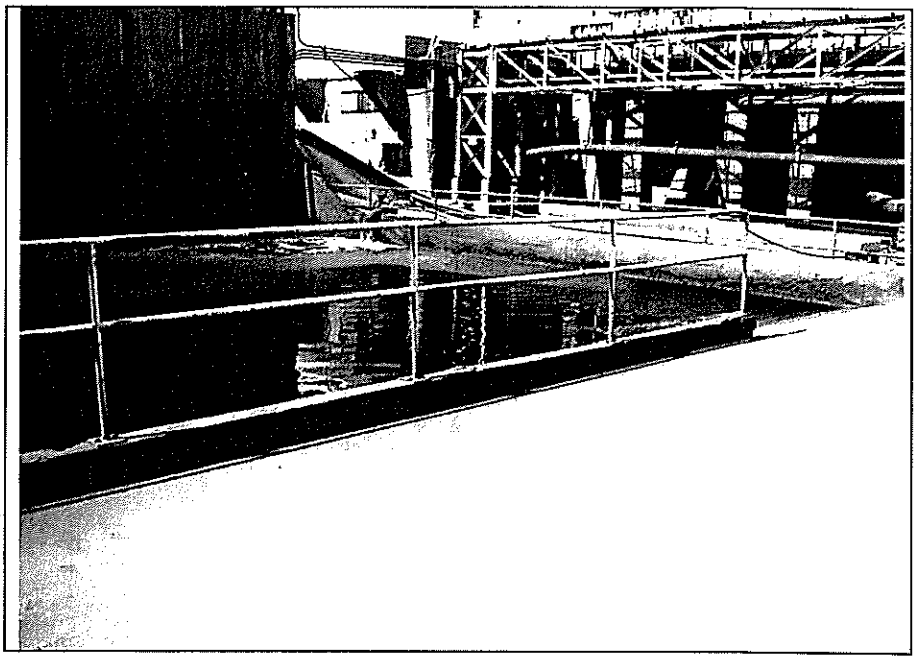


FMI Sierrita Operations RCRA CEI
Green Valley, AZ
PHOTO LOG

DATE TAKEN: 8/11/2009
TAKEN BY: A. Loll

SITE LOCATION: FMI Sierrita Operations

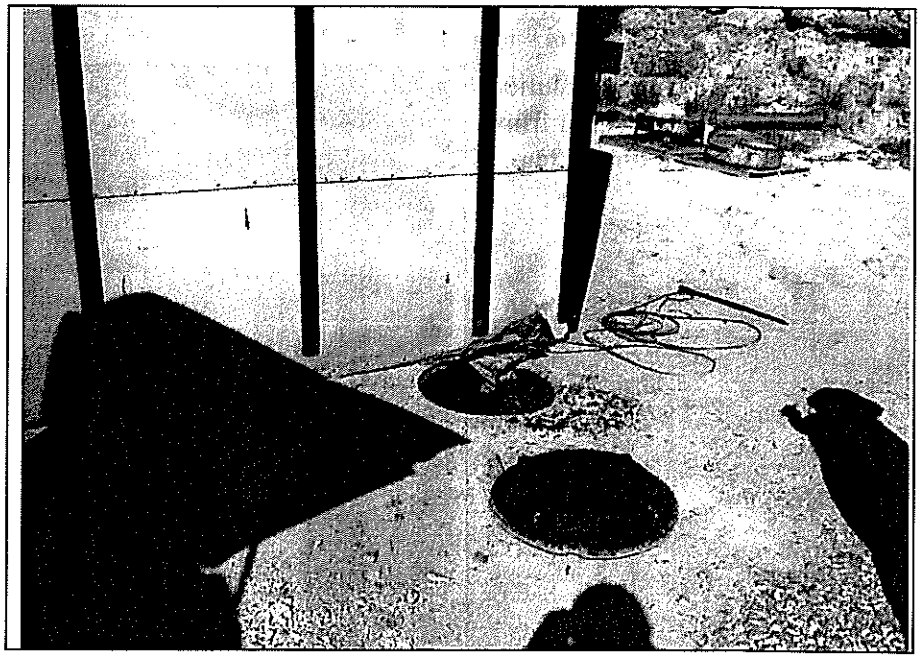
PHOTO #: 7
COMMENTS: SP5 – Molybdenum Decant Pond. Sample was collected from pond using a dipper cup.



DATE TAKEN: 8/12/2009
TAKEN BY: A. Loll

SITE LOCATION: FMI Sierrita Operations

PHOTO #: 8
COMMENTS: SP6 – Analytical Lab Discharge Neutralization Sump. Sediment sample collected from bottom of piping in manway.

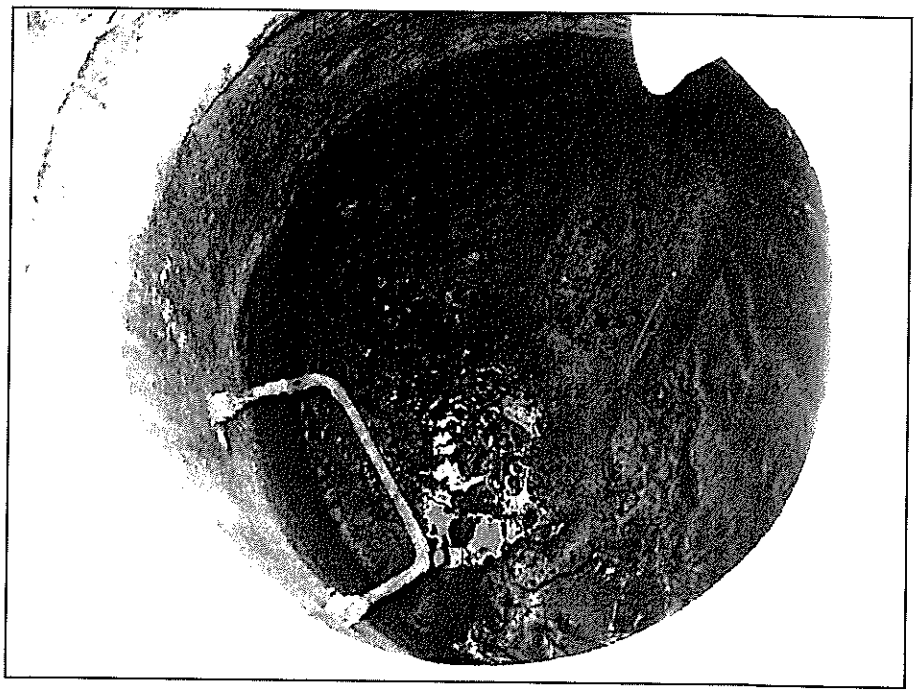


FMI Sierrita Operations RCRA CEI
Green Valley, AZ
PHOTO LOG

DATE TAKEN: 8/12/2009
TAKEN BY: A. Loll

SITE LOCATION: FMI Sierrita Operations

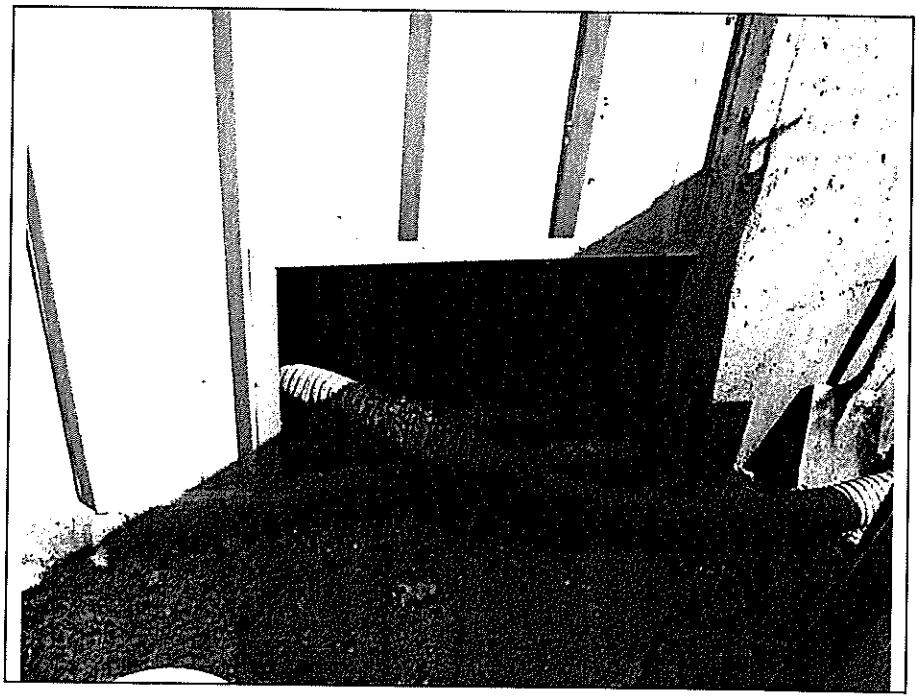
PHOTO #: 9
COMMENTS: SP6 – Analytical Lab Discharge Neutralization Sump. Sediment sample collected from bottom of piping in manway.



DATE TAKEN: 8/12/2009
TAKEN BY: A. Loll

SITE LOCATION: FMI Sierrita Operations

PHOTO #: 10
COMMENTS: SP7 - Lab Neutralization Tank Discharge. Sample collected in a bucket from end of four-inch flexible hose draining into a sump inside the building.

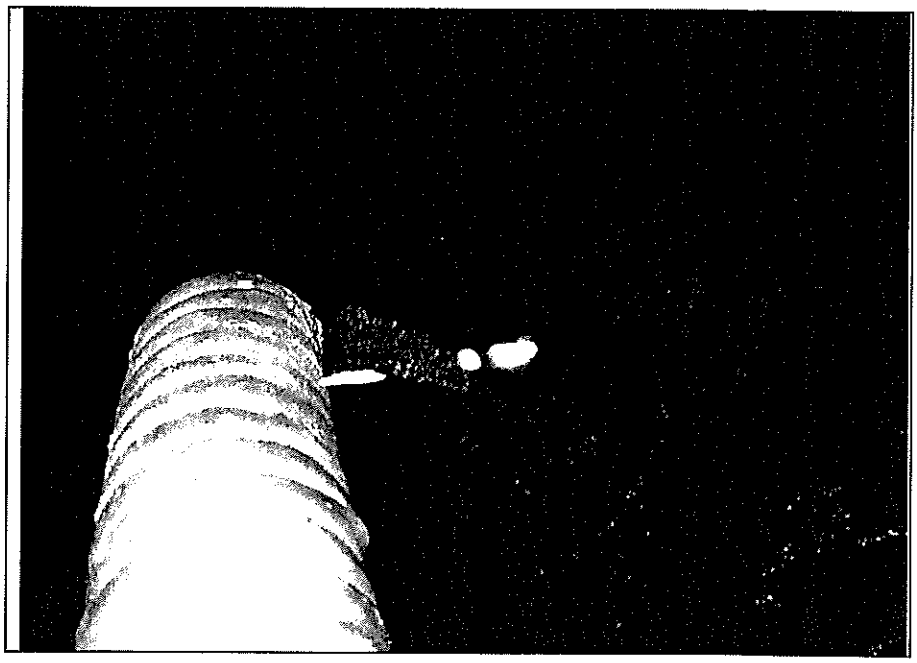


FMI Sierrita Operations RCRA CEI
Green Valley, AZ
PHOTO LOG

DATE TAKEN: 8/12/2009
TAKEN BY: A. Loll

SITE LOCATION: FMI Sierrita Operations

PHOTO #: 11
COMMENTS: SP7 - Lab Neutralization Tank Discharge. Sample collected in a bucket from end of four-inch flexible hose draining into a sump inside the building.



DATE TAKEN: 8/12/2009
TAKEN BY: A. Loll

SITE LOCATION: FMI Sierrita/Twin Buttes Operations

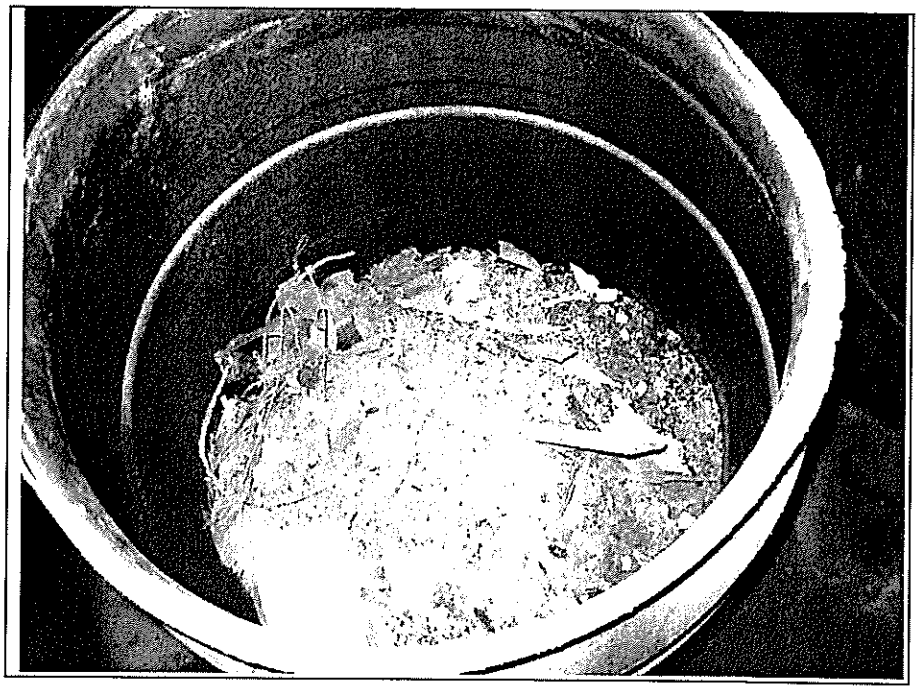
PHOTO #: 12
COMMENTS: SP8 – EW Lead Flakes. Solid sample collected from top of blue drum center and forefront in the photograph. Drums are located in a warehouse area at the Twin Buttes Operations site.

FMI Sierrita Operations RCRA CEI
Green Valley, AZ
PHOTO LOG

DATE TAKEN: 8/12/2009
TAKEN BY: A. Loll

SITE LOCATION: FMI Sierrita/Twin Buttes Operations

PHOTO #: 13
COMMENTS: SP8 – EW Lead Flakes. Solid sample collected from top of blue drum.



DATE TAKEN: 8/12/2009
TAKEN BY: A. Loll

SITE LOCATION: FMI Sierrita/Twin Buttes Operations

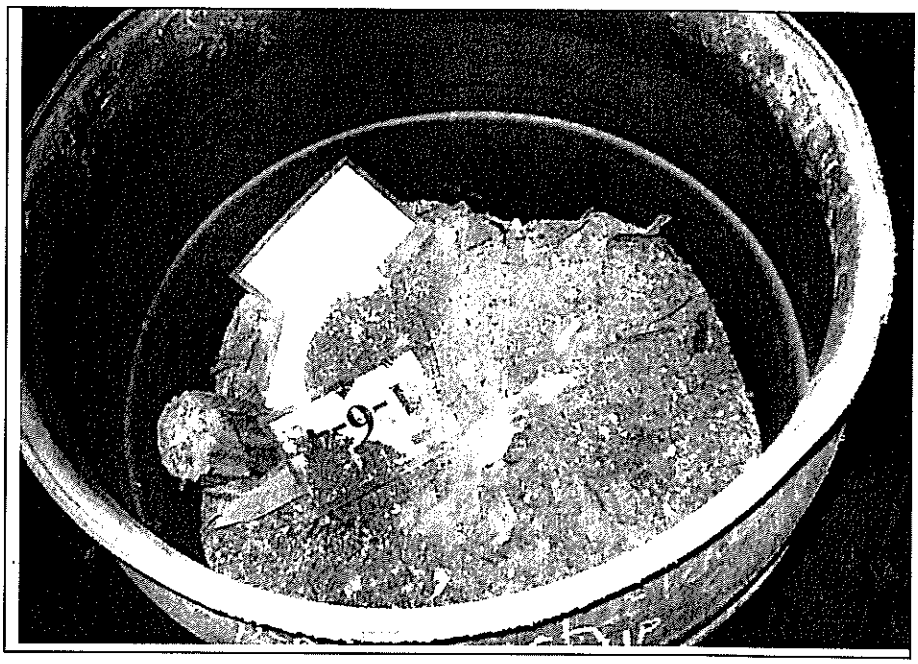
PHOTO #: 14
COMMENTS: SP9 – EW Lead Flakes. Solid sample collected from top of blue drum center and forefront in the photograph. Drums are located in a warehouse area at the Twin Buttes Operations site.

FMI Sierrita Operations RCRA CEI
Green Valley, AZ
PHOTO LOG

DATE TAKEN: 8/12/2009
TAKEN BY: A. Loll

SITE LOCATION: FMI Sierrita/Twin Buttes Operations

PHOTO #: 15
COMMENTS: SP9 – EW Lead Flakes. Solid sample collected from top of blue drum.



DATE TAKEN: 8/12/2009
TAKEN BY: A. Loll

SITE LOCATION: FMI Sierrita/Twin Buttes Operations

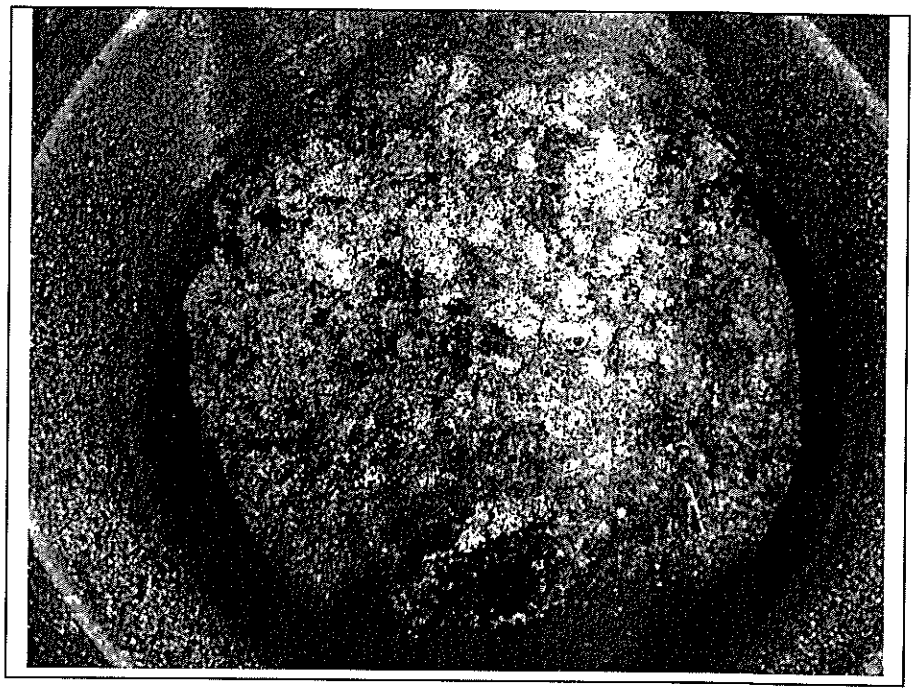
PHOTO #: 16
COMMENTS: SP10 – EW Lead Flakes. Solid sample collected from top of blue drum centered in the photograph. Drums are located in a warehouse area at the Twin Buttes Operations site.

FMI Sierrita Operations RCRA CEI
Green Valley, AZ
PHOTO LOG

DATE TAKEN: 8/12/2009
TAKEN BY: A. Loll

SITE LOCATION: FMI Sierrita/Twin Buttes Operations

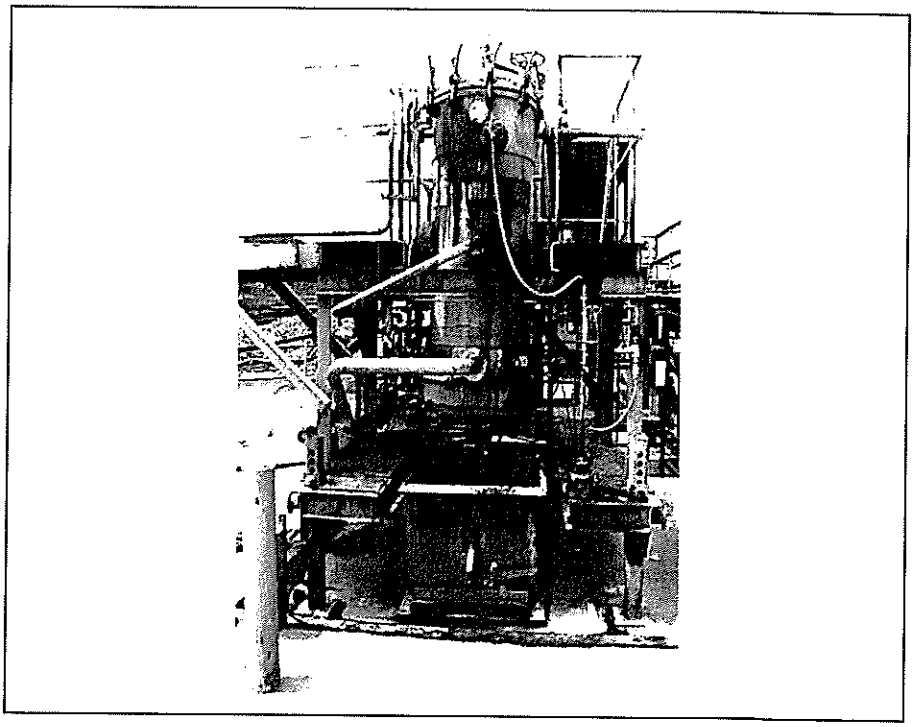
PHOTO #: 17
COMMENTS: SP10 – EW Lead Flakes. Solid sample collected from top of blue drum.



DATE TAKEN: 8/11/2009
TAKEN BY: A. Loll

SITE LOCATION: FMI Sierrita Operations

PHOTO #: 18
COMMENTS: SP11 – SX Crud. Solid sample collected from crud collection bin.



FMI Sierrita Operations RCRA CEI
Green Valley, AZ
PHOTO LOG

DATE TAKEN: 8/12/2009
TAKEN BY: A. Loll

SITE LOCATION: FMI Sierrita Operations

PHOTO #: 19
COMMENTS: SP11 – SX Crud. Solid sample collected from crud collection bin.